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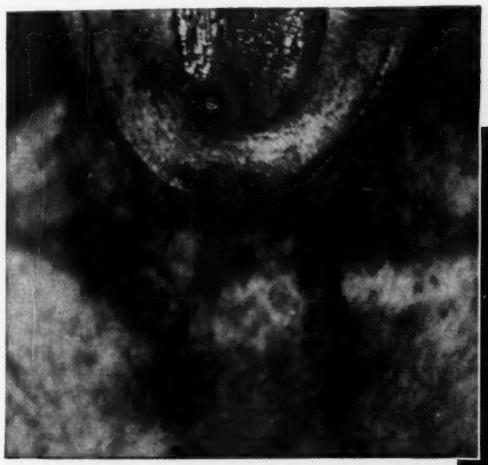

Casal's collar in a patient with advanced pellagra secondary to chronic alcoholism.

Illustration courtesy of Virgil P. W. Sydenstricker, M.D., University of Georgia Medical School, Augusta.

The scaling symmetrical pellagrous dermatitis of the hands.

The Dermatitis of Pellagra

The severe scaling dermatitis of the hands seen in most cases of advanced pellagra is pathologically identical with skin lesions developing elsewhere on the body surface. Microscopically, thickening of the skin, lymphocytic infiltration of the dermis, and hyaline degeneration of the intima of the smaller arterioles are observed. The early clinical changes consist of burning, tenderness, erythema, pigmentation, and mild vesiculation. The acute character of the eruption disappears after a variable period but if no treatment is instituted, the pigmentation becomes more intense and the scaling and desquamation more severe. As with other pellagrous skin lesions, the dermatitis of the hands is bilateral and symmetrical, and is sharply demarcated from the adjacent normal skin.

The dermatitis which frequently appears on the neck is known as Casal's collar. The lesion assumes its peculiar distribution because of the provocative action of sunlight upon the skin of pellagrins. The neck, exposed to the influence of sunlight, is thus frequently the site of the pellagrous dermatitis. However, unexposed portions of the skin, notably the upper thighs and perineum, may become similarly involved.

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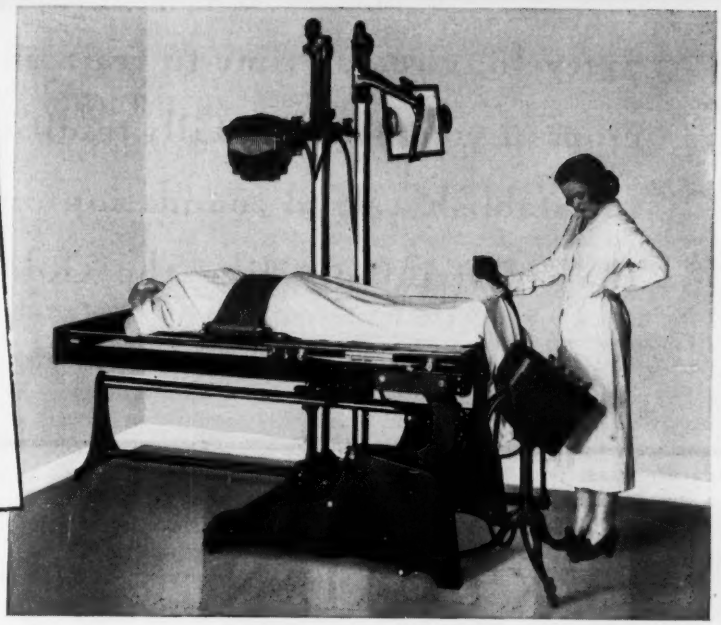

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THE ROLE OF ENDOCRINES IN PEDIATRIC PRACTICE

By

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Iowa City, Iowa

Training in our medical schools is based largely on the study of disease. When the young physician first enters medical practice his mind is filled with pictures of manifest illness accompanied by marked pathological changes. When patients present themselves to him for treatment, he is disconcerted if he fails to find such evidences of disease. Only with experience do we come to recognize that a large part of medical practice is made up of minor disturbances of function which are explainable more on the basis of the manner of life the patient is living than on organic disease. Many of the patient's complaints are difficult to ascribe to the stereotyped medical syndromes, even though they obviously are matters for concern. The recent exploitation of vitamins, allergy and endocrines has opened up new avenues for explaining our patient's symptoms. Pharmaceutical houses are selling vast quantities of products which were unheard of a decade ago. Are these medications serving a useful place in treatment, other than the psychic effect their use may offer? Surely some of these new products are indispensable, and without their use certain of our patients could not survive and others would suffer needlessly. Occasionally the physician encounters unquestioned instances of endocrine dyscrasia, and through suitable therapy he may prolong the life of such a patient, or even restore him to a state of health and of useful activity. Such examples of endocrine disease are more common in the adult patient than in the child. This presentation is designed to indicate in some measure what forms of such disturbance may be expected in the child, what manifestations may be mistaken for endocrine dyscrasia, and how these and related conditions can be treated successfully. Generally speaking the role of endocrines in children's disease is less than the use of endocrine therapy would indicate.

At the outset we should recognize the fact that knowledge now available concerning the function of the internal secretions represents only a fringe of the fabric. Most of what we know has been learned through animal experimentation under conditions which differ from disease as it is encountered in humans. We cannot assume that such knowledge can be carried over into medical practice. When adenomas of endocrine glands are present, they may give rise to unmistakable signs of hyperfunction. When these adenomas undergo degenerative changes, or when for any other reason the gland substance is destroyed or reduced in amount, evidences of hypofunction will arise. The child may be born with some form of endocrine deficiency; this usually is not apparent at the time of birth, but becomes manifest at a time when the body's demands exceed the gland's capacity. Under the conditions mentioned, the patient's symptoms and clinical course usually will leave no reasonable doubt as to the diagnosis. Unfortunately the term endocrine disorder has come to include in the minds of some practitioners a wide range of minor disturbances or peculiarities of physique in which endocrine causation can be established only through a process of rationalization. In such patients endocrine products do little if any good, and frequently do harm.

Preliminary to further discussion, attention should be drawn to certain characteristics of childhood, which must be kept uppermost in mind in all problems of diagnosis and therapy. Childhood by definition is the period of growth and of development. It is not a period of stasis. Standards of normality of the child are progressive, and are based on the child's attainment in terms of his own past record as well as through comparison with other children. The characteristics of the child's physique are determined by his age, his genetic background, and the degree in which his environment meets his needs. It is important that the physician keep records of height, weight and general characteristics of the child as a part of his medical record, in addition to

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citations of pathological findings. It also is important that the physician evaluate these physical characteristics in terms of the child's past and of the average standards for his age. When there is a discrepancy which seems unfavorable for the child, the physician should attempt to find an explanation for the situation. Occasionally the status will be due to endocrine anomaly. More often it will be explainable on the basis of the child's individual body pattern. Most frequently it can offer the physician evidence that the child's manner of living is not conducive to his best state of health and of development.

Minor evidences of retardation of growth are frequently observed during the careful examination, and occasionally the physician will encounter definite dwarfing. Granting that often the minor variations from standard physique represent the child's inherent pattern of physique, how often does smallness indicate endocrine anomaly and call for corresponding therapy? Studies on animals have shown that growth of the immature animal can be stimulated through administration of the growth promoting fraction of the anterior pituitary. Frequently such therapy has been employed with children, but generally speaking the results have been disappointing. Possibly this is explained in part by the fact that usually the therapy is delayed until the child is approaching puberty, when capacity for growth may have been almost exhausted. Moreover, most instances of delayed growth are due to currently operative environmental factors rather than to endocrine imbalance. Without proper attention to the causative agents, little can be attained through any therapy. Such causative agents frequently comprise a combination of poor nutrition, persistent low grade infection, chronic fatigue, and occasionally impairment of function of some vital organ. It is our practice in dealing with children who are not growing properly to make an appraisal of the child's customary diet, both as to quantity and quality, to determine its predictable adequancy for normal development. Information is obtained as to the nature and degree of his activities, with a view of ruling out chronic exhaustion. Evidences of persistent infection are looked for, especially that involving the upper respiratory tract. Then tests are made to establish the normal functioning of the digestive tract, intermediary metabolism and renal excretion. The child is placed on a regimen which should promote growth in a normal child, suitable therapy is instituted for any infection or organic disease discovered, and the patient is observed under such a regimen for a period of several months to establish its efficacy. Such a plan usually is effective without the use of endocrine preparations. The following individual growth records illustrate this:

Child A entered the hospital at the age of three and one-half years, weighing only sixteen pounds and measuring only thirty-two inches. He had a history indicating chronic intestinal indigestion extending from the age of a few months. When placed on a diet low in fat and starch, high in skimmed milk, fruit juices, cod liver oil, egg and dextrose, he began to gain. With improvement the diet was liberalized with avoidance of excess fat and of complex carbohydrates. He gained rapidly, and in the course of the next three years he had reached the average height for his age and utilized well his modified diet.

Child B came to the hospital because of progressive bony deformities and dwarfism. She was found to have intractable rickets which did not respond well to vitamin D therapy until the total daily dosage was very large. Once the rickets came under control she began to grow and continued to do so at the normal rate, even though she did not make up for the initial loss. At present she continues at the lower level of normality for a child of her age.

Children C and D were twin sisters with diabetes mellitus. Child C developed the disease at the age of three, her sister at the age of nine. Each was markedly undersized at the time of our first observation. Once the children received and utilized an adequate diet, normal growth was resumed; in fact the rate was more rapid than seen in the average child. As a result they now are essentially normal in physique.

Child E was admitted to the hospital with complaints of irritability, food refusal, nausea and vomiting, and failure to grow. Examination indicated that she had a congenital anomaly of the kidneys associated with marked renal insufficiency. In spite of every available therapeutic measure she did not improve, and died at about the age of seven years. She grew but slightly following her first period of observation at the age of two years. Here the underlying cause of the failure to grow was the renal insufficiency; since this could not be corrected through therapy, no measure could lead toward growth stimulation.

Each of the children cited presented marked retardation of growth. In every instance, underlying organic disease was at fault. If these children had been treated with endocrine therapy at the outset, the causative conditions would not have been appreciated and progression of disease would have resulted. If endocrine products had been used as a phase of the treatment employed, we might wrongfully have attributed the stimulation of growth to those agents rather than recognizing that the children grew satisfactory when their general health received the attention it deserved. Whereas we do not deprecate the use of the pituitary growth promoting factor or of thyroid extract when clinical evidence indicates that the child is deficient in these regards, we do not feel that such use should supercede other more effective and urgent measures.

Delay in sexual maturity should be matter of concern, if there is evidence that maturation is delayed more than is consistent with normal limits. There is a trend to use the sex hormone of the anterior pituitary in such patients without prelimi-

nary measures to determine the cause of the delay in development. Maturation may be delayed by any serious disease which interferes with normal metabolism. Dwarfism and infantilism are not uncommon sequels of inadequately treated diabetes mellitus. Proper regulation of the disease will lead to some measure of renewed growth and to maturation if the individual still is in the age when such events are possible. Moreover, suitable management of the disease is desirable for its own sake. It is unwise to use pituitary or other growth-promoting products as adjuncts to treatment of these individuals until the effect of attention to the general level of health and nutrition has been established through prolonged and controlled observation.

Obesity is another condition which frequently is treated with endocrine products without having established the presence of endocrine inadequacy and without ruling out environmental causes for the condition. For some reason, the medical profession has come to associate the diagnosis of obesity with that of hypothyroidism or of Froelich's syndrome. In a recent survey of adult obese patients in our department of internal medicine, only one out of a series of 400 patients was found to have undisputed evidences of hypothyroidism; and in a series of forty adult patients who came to the hospital because of thyroid deficiency, only five could be classified as obese. Usually the children who come to us because of obesity have received endocrine therapy, typically without benefit. Without exception we have found that these children were accustomed to eating more food than required for their energy needs. In no such patient have we used thyroid or other endocrine therapy for treatment of the obesity, and in all patients who would cooperate in limitation of diet to that prescribed, the desired reduction in weight has been observed. It seems apparent that through their heritage certain children are inclined to a stocky type of physique and that they tend to become overweight more readily than those of the small boned configuration. Very possibly this distinction arises from a difference in the endocrine balance which each has inherited at the time of shuffling of the chromosomes. Even in these persons, however, obesity is the sequel of overingestion, and it can be corrected or prevented through reduction of food intake to a suitable level. To bring about reduction of weight in the obese child this level must be considerably below the energy requirement, so that the organism will be forced to make up the deficit through combustion of the fat reserve. Needless to say, it is important that the diet be designed so that it is qualitatively and quantitatively complete in all regards other than the energy content. The latter may approximate nine hundred calories under average circumstances. The use of such a diet together with wise prescription and supervision of exercise comprises the only regimen necessary for weight reduction in the obese child. The use of thyroid extract in addition not only is unnecessary, but may be dangerous. The thyroid extract serves to increase the rate of combustion of food and stimulate metabolic processes; ofen it stimulates the appetite as well. Estimations of the basal metabolic rate in children are difficult to interpret at all times, and this is true especially in the obese child. Recent observations have been reported to indicate that such a child may have a metabolic rate which appears to indicate hypothyroidism, yet when the rate is recalculated according to the child's creatinine excretion or when it is measured in some other manner, it is found to be higher rather than lower than normal.

Medical practices and beliefs have changed markedly during the past century, more especially since the dawn of the era of experimental observation. Some of the earlier ideas survive, however, even though they have been redressed to fit the current fashion. More and more, doubt is being directed toward one of these concepts, namely, the ability of the thymus gland to cause undesirable symptoms or death. Some texts still give the impression that the enlarged thymus is frequently a cause of stridulous breathing or of respiratory obstruction. Many surgeons still feel it necessary to rule out enlargement of the thymus prior to operation, so as to be sure that the child is not a candidate for so-called thymic death on the operating table. There ideas are based on certain misconceptions. The first of these is due to misinterpretation of the size of the normal thymus. Competent observers have established that in children with generalized disease the thymus undergoes involution so that within a few days it may be markedly diminished in size. Statistical data used by pathologists in estimating the relative size of the gland at the post mortem examination are based on glands which have undergone such involution. If the pathologist confines his normal data to the size of thymuses which are observed in the bodies of children who have died suddenly from external trauma, he will find that these new standards are as high as the values he previously has considered as abnormal. Interpretations of x-ray photographs of the chest are similarly misleading. The thymus is soft in consistency, and it adapts its shape to the space it must occupy. The apparent size of the thymus varies markedly with the two phases of respiration; if the picture is obtained during inspiration the gland may appear to be enlarged. Some observers have accepted fluoroscopic evidence of collapse of the trachea of young infants during ex-

piration as evidence that pressure from the thymus was distorting its lumen. This finding is normal in a high percentage of infants during the first six months of life, and is merely an indication of the pliability of the cartilaginous rings at that age of life. Moreover, so-called thymic breathing has been described in some infants offering no demonstrable evidence of thymic enlargement, whereas other infants with shadows interpreted as abnormally large have remained free from symptoms at all times. Sudden death in infants has been ascribed to a hypothetical state termed status thymolymphaticus. This diagnosis has not been based on experimental evidence establishing the existence of such a condition, or on pathologic evidence establishing that the thymus was involved in the cause of death. Instead this diagnosis has been used when the clinician or the pathologist was at a loss to suggest a more likely cause. It would be as justifiable to ascribe death in diabetic acidosis to disturbance of the thymus; in that condition the appearance of the tissues after death does not establish a cause of death. In our own experience we have found that infants who died unexpectedly may have concealed mastoiditis which becomes apparent only when the mastoid cells are examined at time of the autopsy. Such examination usually is not made in the routine post mortem examination, and the frequency with which hidden infection is overlooked cannot be estimated. Decidedly the evidence for the occurrence of thymic disorders is not convincing.

Evidence of deficiency of certain endocrines is seen occasionally during childhood. Most important of these are hypothyroidism and hypoinsulinism. Disturbances of the pituitary function are seen occasionally, but the picture often is obscure. The non-specificity of dwarfing has been discussed. Occasionally diabetes insipidus is seen in childhood, apparently dependent on hyposecretion of the antidiuretic principle of the posterior pituitary lobe. This responds nicely to pituitary therapy, not only to hypodermic injection, but equally well to the nasal insufflation of the powdered whole gland.

Congenital hypothyroidism is a condition important to the medical practitioner. It can exert severe effects on the infant or child, leading to retardation of development of mind and body. With suitable treatment the child may develop within his full propensities. However, if treatment is delayed, inadequate or irregular in administration, permanent damage cannot be avoided. As soon as the diagnosis has been made and established, the physician should place the infant on a dosage of thyroid extract as large as it can tolerate without evidences of toxicity, and use every means at his disposal to have this medication continued under medical observation throughout the life of the patient. Since the evidences of hypothyroidism usually are not manifest at the time of birth, the physician may not have an opportunity to suspect the presence of hypothyroidism until the child's slowness in development and his abnormal appearance makes his abnormality apparent even to his parents. If the mother also has hypothyroidism, the infant may show signs of cretinism at the time of birth. Otherwise they may not become apparent until the fourth or even the sixth month. The degree of deficiency may vary from severe unmistakable cretinism to a borderline state in which the diagnosis can be established only through therapeutic trail. The true cretin tends to maintain its infantile configuration, with limbs which are short in comparison with the length of the trunk. Dentition is delayed. The infant is slow in his physical achievements. There is a tendency toward constipation and anemia. The dryness of the skin and coarseness of the hair may be less prominent than the usual textbook picture would imply. The infant is lethargic, his cry is throaty and coarse, his disposition is irritable. From week to week his progress is slower than one would expect. In the cretin who has passed the period of infancy without thyroid therapy, these abnormalities tend to become more conspicuous. Moreover, x-rays of the wrist will reveal significant delay in the appearance and development of the carpal centers.

When the physician has good grounds to suspect hypothyroidism in a child, he is justified in determining the effect of thyroid medication. Generally speaking, tolerance for significant amounts of thyroid extract may be accepted as evidence of need for the drug. The initial dose should be small—possibly one-quarter grain, three times a day, increasing it moderately at intervals of alternate days until the child's maintenance requirement has ben attained or signs of toxicity have developed. With elevation of pulse rate, flushing, marked perspiration or diarrhea, the dosage should be reduced. The child with normal thyroid function will not be able to tolerate significant amounts of potent thyroid extract for any long period. Once the maintenance, subtoxic dose has been established, its administration should be continued each day without interruption throughout the lifetime of the individual. The safety and adequacy of dosage should be reviewed frequently. The physician should feel the responsibility for taking the initiative in maintaining treatment. We have seen some pitiable instances of children who were started on suitable therapy at a sufficiently early age, but whose parents had allowed it to lapse. As a result the children had relapsed into a state of idiocy for which no noteworthy improvement could be hoped.

Occasionally the physician is tempted to try thyroid medication for the child who is physically and mentally retarded because of mongolian imbecility. Such therapy is without value, and serves only to make the child irritable and unhappy. The mongol is not amenable to endocrine therapy of any type, and it is not kind to build up groundless hopes in the mind of his parents.

Goiter of adolescence is quite common, especially in areas of iodine deficiency. Its occurrence is practically elimated through the supervised intake of iodine in some form in the diet. The condition of itself seems to be quite innocuous, and it is unwise to treat it in any way other than through the administration of minute amounts of iodine. The taking of two grains of sodium iodide once every two weeks is recommended by some physicians. The use of iodized salt probably is adequate as a prophylactic measure, if the product used is one which retains its iodine content at the time the salt is used. Certain impurities in the salt may lead to the loss of the iodine. Whereas objection has been raised to the promiscuous use of iodine in the diet because of its possible harmful effect on thyroid adenoma, experience seems to indicate that such danger is remote in the population at large.

Hypoinsulinism leads to the development of diabetes mellitus. In the author's experience, this endocrine anomaly has been seen more frequently than any other of the typical endocrine syndromes. About a tenth of all cases of diabetes make themselves manifest during childhood or early adolescence. Diabetes in the young person cannot be considered as equivalent to the disease as it is seen in middle life, even though the basic etiology may be the same. Typically it is more severe, and because of the child's problems of growth and development, it may exert more profound effects on the physique of the patient. The young diabetic patient never attains as secure a degree of stability of management as that obtainable with careful treatment of the adult, and he reacts more unfavorably to inadequate management than does the older patient. On the other hand, the child with diabetes mellitus who receives the advantages of optimum care will grow and develop as well or even better than the average child who often lives under substandard conditions. Whereas diabetes is not curable, and has a tendency to progress in severity during certain of its phases, it is more predictably controllable than any other major chronic illness when proper measures can be taken. Such measures call for accuracy of insulin dosage from day to day, provisions for estimating accurately the patient's metabolic status, and the maintenance of sugar-free urine insofar as it is possible under skilled management. This standard of therapy is more strict than that commonly employed. With the adult such a regimen may be considered unattainable or unnecessary. For the young patient we feel that it is essential. With anything less, the physician and the family are condoning an undesirable and unnecessary state of affairs, which predictably will work to the child's physical disadvantage. The child who receives plenty of food for his body's needs and whose blood sugar is kept fairly within normal bounds through supervised insulin administration may look forward to a life of continued health and activity, with avoidance of the degenerative tissue changes which characterize poorly controlled diabetes and with freedom from acidosis or coma.

The regimen which we have found most effective in the management of the diabetic child may be of interest. It is based first on the prescription of a diet which is designed to provide liberal amounts of protein, minerals and vitamins, with a caloric value sufficient for the requirements of growth and full activity. This diet is revised from time to time to keep pace with the child's subsequent development. From the outset, insulin is used in amounts sufficient to keep the blood sugar level within normal bounds or as close to this as circumstances permit. The child's course is controlled through testing for sugar each sample of urine voided and periodically through estimation of the blood sugar level. At the start of management, or following any complication of management, the patient's insulin requirement is inconstant and must be adjusted from day to day. If conditions permit nicety of adjustment of dosage, with the patient under fully controlled conditions, the initial requirement for insulin is lessened markedly during a period of three to five weeks. Over a month usually elapses before the child reaches his maximum state of stability. If the preliminary program of management can be carried through to this point of maximum stability, the patient's subsequent course of care is simplified. Without this, he tends to remain unstable and have difficulty in the avoidance of glycosuria or insulin shock. We have not found protamine insulin adapted to the needs of the child patient. Its prolonged effect acts not as an advantage but to the contrary. Through its cumulative effect there is danger of severe intractable insulin shock if the patient is kept entirely sugar free. If glycosuria is countenanced as a means of combating insulin shock, the cost in terms of ultimate health is excessive. The only instances of diabetic cataract, enlarged liver, dwarfism, or other similar complication noted in our series of over 200 diabetic children have been seen in children who failed to follow the described regimen. Unmodified insulin, given as frequently as four times every twenty-four hours,

has served to control the diabetes in these children in an excellent manner, and the prescribed regimen has been one which the average household has been able to follow. We have records of many children who have been under the described management for periods of eight, ten and even fifteen years with outstanding success. Their appearance is that of vigorously normal healthy young people. They represent a good example of an endocrine problem which arises in childhood, and the favorable results which combined treatment can accomplish.

In conclusion, it seems important to think of the child in terms of his whole existence, and treat not only the child but also his environment. In certain well-defined conditions such management includes consideration and treatment of the endocrine functions. In obscure conditions where endocrine relationship is questionable or doubtful, more good and less harm will be accomplished through general measures than through efforts directed aimlessly toward endocrine therapy.

IMMEDIATE REPAIR OF FLEXOR TENDONS*

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The actual value of the hand is indeterminate. Even after its loss the resultant handicap is seen in regressive personality changes as well as economic losses. At best, results from hand injuries decrease the efficiency of the injured person. To obtain the best results in injured members, there are certain fundamental principals which should be followed. It is only after covering most of the literature now available that these facts can be collected and properly applied. Realizing that the average surgeon does not see enough of these cases to warrant his reviewing the literature, nor does he have the time and necessary library facilities to do so, an effort has been made to present in a simple manner the essentials of immediate tendon repair.

Knowledge of the anatomy and function of the individual tendons and nerves of the hand and forearm is the first consideration as only by knowing this is it possible to make an accurate determination of the damage done and what surgical procedures will be required. For a consideration of the anatomy you are referred to an anatomy book. A quick review is essential before going to the operating room but it might be added that unless one is familiar with the details it will be of benefit to take the book into the operating room with them so that they may refreshen their knowledge as the repair proceeds.

When the patient is first seen a sterile dressing should be applied to the injury; bleeding is best controlled by the use of a tourniquet. The extent of injury is next determined by observation of function of the hand and not by probing or exploration. The flexor profundus digitorum flexes the distal phalanx of the four fingers. Its position may be remembered by saying the poor (profundus) are always on the bottom. The flexor pollicus longus flexes the distal phalanx of the thumb. The flexor sublimus digitorum flexes the middle phalanx of the four fingers. The flexor pollicus brevis the proximal phalanx of the thumb. It occasionally happens that a laceration over the side of the proximal phalanx seems to sever the profundus but not the sublimus tendon. This is accounted for by the fact that the laceration is distal to the point (mid proximal phalanx) where the sublimus divides to insert into either side of the middle phalanx and only one slip has been severed.

Severance of both tendons are easily recognized as the injured member remains in extension.

Lacerations over the hypothenar area of the hand are not frequent. It results in loss of ability to abduct the fifth finger and cup the ulnar side of the hand.

Injuries to the thenar area are more common and result in great loss of function if not repaired. The motor branch of the medium nerve passes distalward just to the ulnar side of the thenar eminence laying under the palmar fascia and on the tendons. Injury to this nerve results in inability to rotate and abduct the thumb, loss of sensation over the thumb index, middle and radial side of the ring finger. It is commonly injured when the flexor pollicus longus has been severed in the thenar region.

It is occasionally difficult after examination of a cut wrist to say just what the extent of injury has been—this is due to the fact that the hand can be flexed after the flexor carpi radialis, ulnaris and palmaris longus have ben cut, through the action of the flexors of the fingers and thumb. In the same way it is not possible to tell how many tendons of the flexor digitorum sublimi muscle have been separated until the wound has been explored because the flexor digitorum profundus will flex the fingers although clenching is not possible. Injury to the median and ulnar nerves is always present until proven otherwise.

Indications for treatment that is to be given must be determined by the time which has elapsed be-

*Presented at the 81st Annual Session of The Kansas Medical Society, Wichita, May 14, 1940. (Exhibit of the Ford County Medical Society.)

Clinical Material and Experimental Work done at Receiving Hospital—Wayne University, Detroit, Michigan.

tween the occurrence of the injury and when the patient is first seen as well as taking into account the character of first aid given. It may be generally stated that tendons in the fingers and hand should not be repaired after six hours and those of the wrist after eight hours. Friedrich[1] has shown that after this period of time the organisms present have become acclimated to their new environment and cannot be removed by mechanical cleansing and debridement.

In the operating room a tourniquet should always be used as it not only hastens work but makes it much easier. A blood pressure cuff is the most satisfactory. The arm should be elevated for a few moments while the blood pressure cuff is applied. It is inflated to about 250 mm. mercury. This should be deflated every forty-five minutes to rest the patient's arm and to permit a new influx of blood. In preparation for surgery the dressing is removed except that portion covering the wound. The surrounding skin is carefully washed with soap and water, then the wound is gently irrigated with normal saline; antiseptics are unnecessary and not infrequently irritating to the delicate gliding surfaces of the tendons and their sheaths.

In most places general anesthesia is considered as being the most satisfactory for it gives complete relaxation, the tourniquet does not cause discomfort and the surgeon does not have to worry about the mental status of his patient during an often long, tiresome procedure. There is also the possibility of further damage to already injured tissue by local infiltration. However, local anesthesia has its advantages. It is more frequently used as a regional block, be it brachial plexus, at the wrist or fingers, than as local infiltration. When local infiltration is used the needle is inserted away from the wound margins but directed towards the wound so that the infiltration will tend to wash any remaining foreign matter out of instead of further into the depth of the wound. A cooperative patient can assist in locating the severed tendon ends but more especially at the end of the operative procedure he is conscious and can move the injured member. The structures should be in the same anatomical position as before the injury occurred and should therefore be capable of giving a normal range of motion. In this manner one may determine the necessity of reconstructing the pulleys. The chief disadvantages are that the time passes much more slowly to the patient than to the surgeon, the tourniquet causes considerable discomfort and must be released from time to time and also the fact that tension on the proximal tendon occasionally causes pain and the patient stiffens pulling the tendon away.

Let it suffice to say that the smallest instruments available be used. The standard size of operative tools are entirely too large for tendon and nerve repair.

The type of suture material to use has long been discussed, but it is now well known that tissue reaction to catgut is greater than to silk[2]. The best grade of No. 0 or I silk is most satisfactory. Stainless steel causes little reaction but is inadvisable because of the difficulty in using it without causing undue injury to the tendon. The technique emphasized by Halstead[3] should be followed—that is, fine size of suture, small bites, interrupted sutures, cut close to the knots and rigid asepsis. If there are contra indications to the use of silk, the wound should not be repaired.

The type of stitch to use in repairing tendons is based upon observations from suturing the achilles tendon in dogs. Silk, catgut, plain and chromic, and stainless steel wire were used. There was definitely more tissue reaction to the catgut than to the silk or wire. Stitches as represented below and others were used. The elaborate stitches, while they look well, are actually detrimental—weaving through the tendon tends to tear it and the suture pulls out—permitting further tendon separation. Mason and Shearon[4] have an excellent article on tendon healing in which they have shown that the tendon ends retract from one to two cms. This was found to be true in our dogs. Because of this retraction there is no value in using approximating stitches as they merely pull out and fall between the tendon ends acting as a barier to healing.

The best type of stitch seems to be,

the latter should decrease the amount of tissue reaction around the tendon providing small needles are used, that do not shred the tendon.

Most lacerations of the fingers, hand and forearm run transversely. Since it is not possible to find the tendon ends through such a wound, enlargement is necessary. Mid-lateral incisions are best on the fingers but should not be long enough to destroy the pulleys. Not infrequently it is better to make a second separate incision than to keep extending the primary laceration. This is especially true when the laceration is close to the metacarpal phalangeal joint or the flexor pollicus longus is severed as retraction is considerable. In these places the tendons move in a straight line and they are loosely attached by peritendon which permits a wide range of motion. (Fig. 1 and Fig. 2.)

The incisions should follow the lines of the flexion creases, for a cut down the middle of either the finger, hand or wrist tends to form flexion contractures which are often quite deforming. Mid-lateral

incisions should be used on the fingers so the digital nerve, arteries and veins are not severed. This

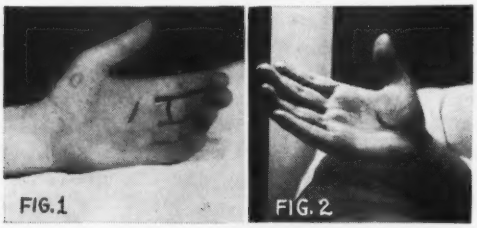
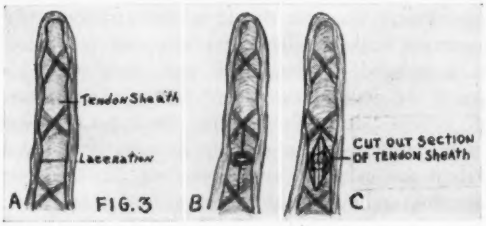


Fig. I. Secondary incision for locating flexor tendons in the palm. Fig. II. Secondary incision for locating flexor pollicus longus in the palm.

incision is just anterior to the midline on the lateral side of the finger.

The palmar incisions are made near and parallel to the distal flexion creases of the hand or thenar flexion crease. By making the secondary incisions the proximal end of the tendon can be quite readily found after separating the palmar fascia. A small opening is made in the synovial sheath and the proximal tendon end delivered. A mattress suture is placed into the tendon, the sutures are threaded through the canal by using a probe and the tendon pulled through. The flexor pollicus longus usually lies more deeply than is anticipated. The incision along the thenar flexion crease should not pass proximally too far as the muscular branch of the median nerve to the thenar muscles passes over the tendon sheath one fingers breadth distal to the transverse carpal ligament and just to the radial side of the palmaris longus.

The tendon sheaths are strong fibrous aponeuroses which extend from the point of insertion of the flexor digitoris profundi tendons proximally to the distal flexion crease of the palm. They attach to either side of the phalanges. These fibrous sheaths are lined by the synovial sheath which encloses the tendon and gives a smooth gliding surface. In the thumb and little finger they continue proximally as the radial and ulnar bursae. The tendon sheaths hold the tendons close to the phalanges so that motion of the individual joint is possible. For this reason the structure must be conserved; it is always necessary to enlarge the opening in the tendon sheath before the severed tendon ends can be found and sutured. The line of incision for elongation should be placed laterally close to the point of insertion A. This prevents the flaps from falling between the ends of the tendon when they separate. If the incision is made down the midline of the sheath there are four corners to fall between the tendon ends B. This also lends to a narrowing of the tendon sheath at this point, to more scarring and possibly a contracture. Where the flaps tend to fall between the tendon ends it is best (Fig. 3) to cut them away leaving a defect providing this will not be extensive enough to destroy the pulleys C—where pulleys will be destroyed a second incision should be made. If the pulley is damaged so that herniation of the tendon occurs on flexion of the fingers it must be repaired. This may be done by using a tendon or fascia graft. This graft should pass over the dorsal surface of the phalanx beneath the extensor tendon anterior to the flexor sheath sewing it together with the suture line placed laterally, thus making a loop.



The synovial sheath covering the tendon carries a portion of the blood supply and provides the gliding surface. The tendons tend to retract more than the synovium which then falls over the tendon ends. The ends seal and a little blood collects within this pocket giving the appearance of a small hematoma. If this is kept in mind a great deal of time will be saved in looking for severed tendon ends. This is especially true above the wrist. The tendon usually lies up the canal a centimeter or so.

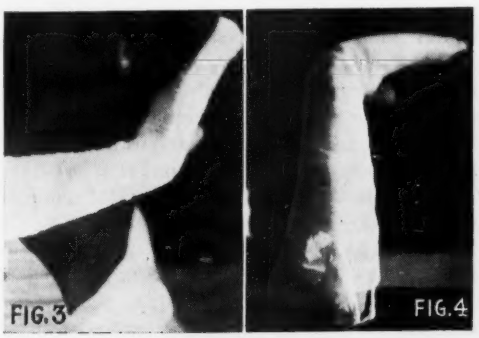
The tendon ends can sometimes be found more easily by flexing the elbow, wrist and fingers—milking of the forearm seldom has any value in bringing the tendon ends into view. Blindly reaching into a tendon canal for the severed end is not only damaging but rarely successful. The least harmful, most rapid and satisfactory way to find the ends is by enlarging the incision or by secondary incisions. After the tendon ends are found they should be treated with the greatest care. They should be held securely and gently with small instruments. The sutures should be placed immediately so that further manipulation of the tendons can be made by traction through the suture rather than by instrumentation. If the ends are jagged they should be cut squarely across with a sharp knife. After repair of the tendons, the wound is gently sponged to see that all bleeding is controlled. This should be absolute. It is not possible to close the defect in the tendon sheath; efforts to do so usually result in further trauma. Digital nerves should be approximated as well as possible. The interossei and lumbricals should be sutured after which the skin edges are closed.

The period of immobilization after repairing tendons is dependent upon the process of healing. Mason and Shearon[4] in their extensive study on tendon healing in dogs found that the defect after retraction of the tendon end is filled by a fusion of the sheath and peritendinous tissues. The sheath tissues tend to unite early but the tendons do not show mitotic figures until the fourth day. At the end of the first week the union is mainly the result of proliferation of the sheath. After the third week the union is substantially due to the tendon itself. By this time the sheath tissues are still adherent but are beginning to assume their gliding character. The structures are now quite strong but can be stretched. For these reasons immobilization should be maintained for a minimum of three weeks.

A sugar tong type of mold either plaster of paris or aluminum is used for flexor tendons, this fixes the elbow at a right angle; flexes the wrist at about seventy-five degrees and holds the fingers in slight semi-flexion. The elbow should be immobilized as part of the flexor muscles originate from the medial epicondyle of the humerus.

After the flexor pollicus longus has been repaired, the wrist should be flexed to seventy-five degrees, the thumb adducted and the index finger fixed in semi-flexion.

Extensor tendons are immobilized by hyperextension of the wrist with the fingers extended in a position of comfort. (Fig. 3 and Fig. 4.)



After a three weeks' period of immobilization has passed physiotherapy is instituted. This consists of hot water baths, massage—active and passive motion. It must be remembered that although healing is fairly solid, in some cases the point of union can still be stretched or even pulled apart. A marble or soft rubber ball is a convenient article for giving exercise. From the beginning it should be impressed upon the patient that full cooperation and a long period of time will be necessary to give a good result.

The first few days following repair motion will be present in the injured member—however, the patient should be advised against movement. This motion slowly diminishes and at the end of a week there is none. A return of function begins after a month or two. It continues to improve for three or four years. Not infrequently a finger which has practically no motion after six months will have almost complete return of function after one and one-half years. As long as there is some motion of the distal phalanx after a few months a good result should be expected. The practice of re-operating upon tendons from three to six months after primary repair is for the most part not justified, if any movement is present, as sufficient time has not been allowed for Mother Nature to reform gliding surfaces.

In general, it may be said that ninety-five per cent good results will be obtained for extensor tendons; flexor pollicus longus ninety per cent; flexors in the wrist eighty-five per cent; in the palm and in the fingers sixty-five per cent.

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Ten states have legally adopted by statute the American Medical Association's method for computing visual disabilities in compensation cases, the Association's Committee on Visual Economics reports in The Journal of the Association for August 3.

The method, evolved from a report which was approved by the Association's House of Delegates fourteen years ago, is now legally sanctioned by the U. S. government and the following states: Kansas, Maine, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Washington, Wisconsin and West Virginia. "In many other states in which no method has received legal sanction," the report says, "this method is employed by labor commissions and by ophthalmologists (eye physicians)."

In an effort to bring about a greater uniformity in the administration of compensation laws for loss of visual acuity, the committee has made a complete review showing the variations in the compensation statutes and laws of all the states. It points out that twenty-five states have not legally adopted any method for rating permanent partial visual disability. Twenty-one states have adopted statutory schedules for such loss. One state, Mississippi, has no visual compensation law, and another, Arkansas, has recently passed a law which has not as yet been adopted by the electorate.

There is also wide variation in such factors as the number of weeks for which compensation is given for the loss of the use of one eye or for the loss of an eyeball, the percentage of average earnings which form the basis for compensation, and the visual factors used in computing loss.

BIOLOGICAL AND BIO-CHEMICAL STUDIES OF CURARE

PRELIMINARY REPORT

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The object of this study is to follow up the work of Burman, in the treatment of cerebral palsy. Since there is no commercial source of curare for therapeutic purposes, and since so many variable statements had been made by commercial concerns, experimental studies were made before using it on clinical material.

Source: "Curare" is a general word for "poison", as used by the South American Indians. It is not, therefore, the name of a particular drug or poison. It is a mixture made from the decoction of the bark of Strychnos Castelnoei, to which is added the leaves of Petiveria alliacea, the stems of Dieffenbachia, etc. By evaporation, a thick syrup is formed, which is poured into bamboo containers, or gourds, or pots, and allowed to dry. Fermentation processes evidently take place in the syrup if stored in this form. If allowed to dry it presents a very dark brown or nearly black extract, resembling black catechu. That imported in bamboo is brown and granular, the broken fragments frequently exhibiting crystals large enough to be visible to the naked eye.

For our experiments, we obtained the dessicated powder, through the courtesy of the Gill-Merril Expedition. This had no odor but did have a bitter taste. It came in two lots; a form botanically authenticated by R. C. Gill, and an unauthenticated form, which he had received from natives.

PREPARATION OF ACTIVE PRINCIPLE

Five gms. of the dessicated powder were allowed to 1000 cc. of triple distilled water. Since the mixture contains insoluble resinous products as well as the curare derivatives, a residue remains at the bottom of the flask. At first, the material was allowed to macerate in the solution for some days, but it was soon realized that the active principles in curare are very soluble, and dissolved quickly. The solution was then filtered, the filtrate being dirty brown in color, and containing the active principle. The sediment was darkish brown or black in color and did not contain the active principle.

The filtrate was placed in serum bottles (fifty cc.) with rubber stoppers. After autoclaving the fluid was a darker brown, and there was some precipitate of fine particles of dark brown or black color. When this was allowed to settle the supernatant fluid was a clear amber color. The amount of precipitate was very small and much darker in color than the fluid. This precipitate had very slight activity.

Since five grams of curare were added to 1000 cc. the strength of the solution was termed as five mgm. per cc. This was technically incorrect since it did not take into consideration much inert material. From a biochemical standpoint an assay of the solution should be conducted after the active principle is dissolved.

It was found that the authenticated solution was very weak (as compared with the unauthenticated) but it could be concentrated by evaporation in the water bath so that very concentrated powerful solutions resulted. For example, one such concentrated solution was assayed, and it was found to contain 3.36 gm. per 100 cc. of solution. The injection of one-half cc. per kilo of this solution subcutaneously was fatal within one minute to the rabbit. The original solution was not fatal even with injection of thirty cc. Since then even stronger solutions have been obtained so that one-tenth of a cc. per kilo is fatal.

RATE OF ABSORPTION

The active principle of curare passes through animal membranes with difficulty, so that if the drug is taken by way of the alimentary canal, it is absorbed so slowly that it can have no appreciable effect, aside from that of a stomachic tonic. Subcutaneous, intramuscular and intravenous administration, however, permits of such rapid absorption as to allow the poisonous character of the drug to manifest itself.

With the unauthenticated solution, we found that a dose of 10.5 mgm. per kilo of body weight was lethal to rabbits. This would be contained in approximately 2.1 cc. of solution. If this amount of solution were diluted ten times, so that it became twenty-one cc., and the entire twenty-one cc. injected into the rabbit, it was no longer lethal. The animal was still receiving 10.5 mgm. per kilo. The solution was not altered, as shown by the fact that if the twenty-one cc. of the present solution was concentrated by evaporation in the water bath back to 2.1 cc., and then injected, it was now lethal again. It was not, therefore, due to any loss of the active principle itself, but rather the whole phenomenon depended upon the rate of absorption of the drug.

Even the authenticated solution could be lethal

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when injected into the vein instead of subcutaneously. Thus, in one rabbit, when as high as 32.5 mg. per kilo were injected subcutaneously, there was not even definite paralysis, although the rabbit became somewhat restless. But the injection of 9.3 mg. per kilo, intravenously, was lethal, and the rabbit died in one and a half minutes.

The conclusion was, therefore, that since the rate of absorption was an important factor in the lethal effect of the drug, all injections experimentally would be subcutaneously in the rabbit. Clinically, it was felt best to make all the injections intramuscularly, and not intravenously. Certainly it was felt that the first dose should not be injected intravenously. Subsequent doses might be injected intravenously, if there was great tolerance to the action of the drug.

In a series of experiments, it was determined that the activity or toxicity of the drug varied, depending upon the dilution. But for any particular dilution, the action was fairly constant. This is important from a commercial standpoint, and shows that it should be possible to standardize effects, but only if the active principle is used in proper dilution. The ratio between the extent of dilution and the seriousness of the effect was not determined.

REFINEMENT OF DRUG

The exact composition of curare is still to be determined, but essentially there are a number of substances, of which two are alkaloids, namely curarine and curine. In addition, there is a substance which gives the clear amber color, if this is not due to one or both of the alkaloids. Most investigators describe not only a paralytic action of the drug, but also what may be called a toxic action, which manifests itself particularly on the circulation. West believed, that this was due to curine.

A series of experiments dealt with relatively concentrated solutions of the drug. As a reagent to present the proper ion, phosphate solution was used since the phosphate ion is relatively non-toxic. Thus twenty cc. of a 10:1 concentration of authenticated curare solution was allowed to receive three cc. of a saturated aqueous solution of K_2HPO_4. A precipitate was formed, which was of a brownish color. This precipitate was active but did not have the activity of the original, and on injection seemed to be very painful. But injection of the phosphate ion, was also painful, so that this was not due to the active principle. The filtrate from this solution was of a yellowish or light amber color, and was very inactive.

It is, therefore, possible to influence the active principle by precipitating it from its solution by the action of the phosphate ion, using relatively concentrated solutions (following the mass law).

With relatively less concentrated solutions a very peculiar phenomenon was noted. Thus fifty cc. of the unconcentrated unauthenticated solution was allowed to receive five cc. of a saturated phosphate solution. Again there was the formation of a precipitate, which was of a brownish color. The precipitate of this experiment was relatively inactive. The filtrate from this experiment, however, was colorless and clear. This clear solution contained the active principle.

The active principle from this clear filtrate did not seem to have the lethal qualities of the original solution. The reaction after its injection was obtained more slowly. Thus the paralysis did not appear for over an hour, and this paralysis was not complete. It was maintained, however, with decreasing intensity until the rabbit was sacrificed for other purpose one hour and fifty minutes later. There was no deleterious effect on respiration.

It would, therefore, seem possible to separate the color principle from the active principle; the toxic principle from the active principle. It may be possible that from the crude curare solutions, certain drugs may be isolated which would give a more slowly appearing but longer maintaining action, and that this action would be less apt to involve the phrenic nerve, and thus affect respiration.

ACTION OF CURARE PRINCIPLE

In mammals, as a result of involvement of the phrenic nerves, there is paralysis of the diaphragm, resulting in death from asphyxia. With cessation of respiration, the heart usually continues to beat for some short time. It takes a fairly large dose to affect the arterial pressure, through paralysis of the peripheral ganglia, with dilation of the blood vessels, and consequent fall in blood pressure, rapid pulse, and so forth.

Effect on normal tonus: Claude Barnard demonstrated that curare paralyzes muscles by affecting the terminations of the nerve within the muscle, probably the end plates themselves. Our own experiments performed on fifty-eight rabbits, to determine the effect of curare on normal reflex tonus (in the intact animal), gave the following results. There is a definite difference in different animals as to the susceptibility of the organism to the drug, and, therefore, much of this work must be interpreted with caution. With very small doses, for example, the subcutaneous injection of eight mgm. of unauthenticated curare solution per kilo of body weight, there was at first an excitability or restlessness. Whether or not, as Tillie has maintained, there is a primary excitation of the spinal cord, could not be de-

termined. In ordinary poisoning, this would be masked by the paralysis of the motor nerves. This apparent excitability does not last very long; after ten to fifteen minutes there is a lessening of irritability. The rabbit becomes less frisky. If stimulated it will react much as in the normal, but without stimulation it seems perfectly content to simply rest. In about sixty minutes this fatigability has entirely worn off and the rabbit is as frisky as before.

With larger doses there is a progressive series of effects. With an injection of 9.5 mgm. per kilo there is the same initial restlessness which is followed with fatigability. At the end of about fifteen minutes there is a drooping of the ears. This is soon followed with inability to hold up its head. There is a tendency for the rabbit, as a whole, to sink to the ground, the body elongates, and there is mild paralysis or atonia, particularly of the hind limbs. There is no complete paralysis and these animals are still capable of carrying out efficient muscular contractions. If stimulated they will carry out movements although they are not as definite or as frisky as one would expect. The atonia appears in about twenty minutes after the injection and may last an hour or more, finally decreasing in its intensity until the animal approaches normal. But even with these doses there remains a tendency to fatigability so that the rabbit is not as frisky as the normal, and may remain so from twenty-four to forty-eight hours. However, while they may not seem as frisky, when stimulated —for example, touched with a stick, they react with convulsive reflex action.

It could not be determined that there was any definite effect on the pulse or on the circulation. There was no cyanosis evident in the examination of the ears.

With a dose of 10.0 mgm. per kilo there were essentially the same effects except that the atonia went on to moderately severe paralysis, affecting the hind limbs before the fore-limbs. With this definite paralysis, the rabbit flattened out on the ground, then fell over on its side. Muscular contraction could be carried out inefficiently, if at all. The paralysis appeared twenty to twenty-five minutes after the injection, remained at its maximal effect for some thirty minutes and then decreased in intensity until the paralysis was evidently cleared up within sixty to ninety minutes. Respiration was somewhat more rapid, and possibly shallower. The pulse was more rapid and rather thready.

With a dose of 10.5 mgm. per kilo body weight, the progression of symptoms was as before except that the paralysis of the extremities was complete, and came on in ten to fifteen minutes. In twenty minutes there was a definite involvement of respiration which became rapid, shallow, and labored. Respiration ceased at the end of thirty minutes, and there was extreme cyanosis of the ears. The animal died through asphyxia, with cessation of respiration, the heart continued to beat, however, for a short period of time.

These findings differed for different batches of solution (made up with varying technics, or solubilities), but remained very constant for a particular solution.

There is demonstration of the rather small latitude from an effective dose to a dangerous dose in these experimental animals. This is important clinically since not only are the motor impulses in general affected, but the phrenic nerve is also involved. This makes it essential that the drug be well standardized before humans be routinely subjected to its use.

Elimination of drug: The action of curare is a transient one, acting as a physiological block at the neuromuscular junction. If the dose is large enough then there is paralysis of the diaphragm, with cessation of respiration. If the animal is tided over this period of respiratory failure (artificial respiration), it makes a full recovery. The more concentrated forms of curare can cause death within a minute or more—but in such instance, the rabbit passes through a convulsive stage, and dies of cardiac failure almost as soon as respiration ceases. This would indicate a toxic rather than a paralytic action. If the rabbit is not killed at the apex of curare action, it makes a complete recovery within one to four hours, aside from "fatigability". This latter symptom may last twenty-four to forty-eight hours—but if no further drug is administered, at the end of this time there is absolute and complete recovery.

There is some evidence to show that the alkaloid (s) is destroyed in the liver, and quickly removed from the circulation by the kidneys.

Action of antagonists: An old observation in the experimental laboratory (working with muscle-nerve mechanisms) has been that the action of the curare may be cut short at any time by the injection of salicylate of physostigmin. That there is an epinephrine-curare antagonism was noted by Panella in 1907, and recently studied by Bremer. Some of the older text-books considered strychnine and atropine as antidotes.

Our own experiments were inconclusive. Injections of the second drug were made at varying intervals of curare intoxication and at times repeated. Mecholyl aggravated rather than relieved, seemingly being a synergist. It caused pulmonary oedema and congestion of the lungs, and collapse in one case. Strophanthin and picrotoxin did not change the symptomatology, but may have been synergistic.

Nembutal had no appreciable effect. In all instances, lethal doses remained lethal doses (artificial respiration was not resorted to).

Effect on abnormal tonus: Experimental investigations of the effect of curare on certain tonic states have been made by Bremer and reported in 1929. He found that it was possible by the injection of a very small dose of curare intravenously (0.25 mg. per kilo of body weight) to abolish or to diminish considerably the extensor rigidity of decerebrate cats, without apparently affecting their phasic motricity, and also local tetanus.

CLINICAL EXPERIMENTS

In the human the exact amount of time required for excretion has not been worked out, but it certainly is excreted in a few hours, unless the dose is very massive, such as when the drug is really used as an arrow poison.

Clinically, we found it is best to begin with a minimal dose, and work upwards gradually until an effective dose is reached. Since Bremer has shown that there is a selective action on hyper-innervated muscles and since in the particular problem at hand what was desired was release from hyper-innervation rather than atonia, or paralysis, only one-tenth of the lethal dose in rabbits has been the starting point in all our clinical work. The first dose is usually of very little effect, if any. As one works upwards, an efficient dose is reached. One should not repeat doses within two to four hours—since rabbits have still exhibited effects of the paralysis for at least this length of time. One of the signals for an effective dose in humans is the drooping of the eyelids. One should pass this dose with caution.

The clinical work was carried out upon one individual with moderately normal tonus, but with peculiar gait, seven cases of cerebral palsy, and one case of Parkinsonism, due to encephalitis. The solution used was the aqueous extract of unauthenticated curare, with a strength of five mg. per cc. of solution. (i.e. five mg. crude drug).

In one particular case of cerebral palsy, a child twelve years of age, and weighing about sixty pounds, it was noted that her response was very striking. Since she had tremors, athetoid movements, as well as true spasticity, a progression of effects was very clearly demonstrated. The first effect of injection of five cc. was crying with pain. Restlessness appeared within a few minutes. About ten to twenty minutes after the injection, the child complained of a heaviness of the eyelids, and soon there was ptosis (bilateral). When six cc. were used, there were further symptoms as nystagmus, diplopia, etc., evident weakness of the muscles of the neck, so that the head has a tendency to droop (this may be considered similar to its effect in the rabbit). There was difficulty in speech, which may be due to weakness of muscles, and weakness of the jaw, so that chewing of hard material was carried out with difficulty. At this stage, there was a peculiar expression of the face, due to inability to grimace, or to fear. With further lapse of a few minutes there was weakness of the muscles of the trunk, and finally loss of tremor of the fingers and hand. With the six to seven cc. injection, it was very difficult to determine whether there was any paralysis of the extremities. There was definite loss of the tremor of the fingers, fewer athetoid movements, and possibly there was some "fatigue". When this injection was given twice a week, after three weeks, there was some definite carry over, at least of the fatigue element, so that there appeared to be less spasticity of the upper extremities (and also of the lower). With eight cc., the relaxation was greater, but there was still no paralysis. With a dose of nine cc. the effect was more striking, and still more so with ten cc. The patient now demonstrated some weakness of the extremities, particularly of the lower extremities, tendency for drooping of the head, and a sort of buckling of the body, arcuar fashion, but the patient still had the use of all the extremities. The atonia appeared after about twenty minutes and lasted only about thirty to sixty minutes. But there remained a weakness or lassitude which seemed to carry over well into the next day. There were no complaints as to breathing. There was, however, light-headedness, an irregular pulse (which at times was rapid and at times slow) and a definite drop in blood pressure (eight-sixteen mm.). There was elevation of temperature to 101-102 degrees, which varied, but remained elevated for twenty-four to forty-eight hours. The dose was changed back to five-six cc. twice a week. The weakness continued to some extent, but there was a gradual pick up. However, the patient did not return quite to the former stage of spasticity and athetosis and the tremor remained lessened. With cessation of the use of the drug, it took about two weeks for the return of the former strength (or spasticity).

The drug does have a definite selective effect. It does not require as much to lesson tremors as to affect spasticity, even athetosis can be affected by a much smaller dose than spasticity. The spastic muscles were affected with smaller dose than those which would affect normal tonus (the injection of seven cc. in a case with almost normal tonus, but similar weight, had practically no effect aside from some possible heaviness of the eyelids). Since a paralysis is not necessary but rather lessening of hypertonicity, we did not exceed the above doses. There was no doubt

that this patient had improved, but she had intensive physiotherapy, muscle education, and occupational therapy all during this time.

In one case of cerebral palsy, only the drug was used, with no muscle education. The findings were somewhat similar as long as the patient received the drug. After cessation of the drug, the patient returned to the former status. It could not be said that there was any beneficial effect.

In one case of severe cerebral palsy who did receive physiotherapy, but poor muscle education, there was improvement not only in the extremities, but also in speech. The improvement in speech remained to greater degree. It may be that the curare was just the thing to enable proper proprioceptive sensations to be experienced and linked up with speech movements. This child was not under treatment from the speech expert. The child is now able to sit by herself for the first time in her life. It is difficult, of course, to gauge how much of this was really due to the use of curare since there was intensive physiotherapy as well as some muscle education.

The continued use of the drug finally produced a state in which there is so much lassitude and weakness that we were somewhat concerned. The use of the drug was discontinued. Cases receiving proper muscle education held much gain. The two cases who did not receive such treatment returned to their former status.

In one case of cerebral palsy, with severe ataxia, the result of curare injections seemed to be negligible. In fact, when the drug was pushed too far (eleven cc.), there seemed to be aggravation of the instability (lack of equilibrium), probably due to weakness.

With larger doses, there was a progression of symptoms. Thus first there would be momentary pain at the site of the injection, which would be followed with general restlessness. The first objective symptom is the drooping of the eyelids, which goes on to complete bilateral ptosis. There follow nystagmus, and diplopia. These symptoms appear before the weakness of the neck muscles, and the drooping of the head, then the arching of the back, due to weakness. There is a blank expression of the face, weakness of the jaw muscles, and inability to speak clearly. The paralytic effect or rather atonic effect on the extremities is the last symptom, and did not appear until twenty minutes or so after the injection. With the doses used, there was no demonstrable effect on respiration, nor was there true paralysis of the extremities. Larger doses—such as are used by Bennett to prevent convulsive seizures, in metrazol therapy, will produce paralysis of the extremities before the respiratory system is affected.

CONCLUSIONS

1. It is possible to standardize curare, but this will require further investigation.

2. Curare has no destructive action; it results in physiologic nerve block, at the neuromuscular junctions. If the patient is not killed by the dose (massive) at or very shortly after injection, then the patient will make a full recovery.

3. There is a selective action of the drug, so that its least effect is on normal tonic muscles. It has increasing effect on hypertonic muscles, athetoid movements, tremors, fatigability. The least dose will be required for tremors; the largest for hypertonia. Where paralysis of muscles is desired, the largest doses of all will be required.

4. Curare must be looked upon as merely a "physiological block". It can have no curative value in itself. Any effect which it may have is entirely due to some form of muscle education (purposeful or not), which is instituted at the time or after curarization. For example, the improvement in speech which remained after cessation of curare therapy was not so much due to the drug as to the fact that there was a period of "rest", so that proprioceptive sensations could be experienced and linked up with motor function.

5. Although curare has no curative effect, as an adjunct in treatment, its possibilities have not been explored.

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EMBOLIC PHENOMENON ASSOCIATED WITH BACTERIAL ENDOCARDITIS

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The diagnosis of subacute or chronic forms of endocarditis, are often most difficult. The reason, being in most instances due to absence of symptoms, and the fact that a cardiac murmur in fever is not proof of endocarditis. Again pyrexia, is so often found in relation to arthritis, or due to other causes. The general septicaemic and pyaemic symptoms, are very often made certain at a late date in the course of the disease. Thus, if the various types of endocarditis are to be recognized clinically, dependent upon predominate features, we have for consideration the all important physical signs and symptoms of EMBOLI.

The recognition of embolic phenomena as a sequelae to endocardiac disease is diligently sought for in those cases where an endocardial foci is known to be present, or the suspect of the same is great. However, in such an instance they lend confirmatory evidence, with out the necessity for settling the question. As a general thing, the symptoms and physical signs of emboli vary rapidly, and are referable to two classes. They may be first mechanical, or secondly suppurative in effect, and also may be single or multiple when manifested. The common sites for their location with resultant vascular occlusive effect may be comprehended with ease. Although one must examine for the transient, red, tender erythematous spots, (Osler's nodes) especially near the finger-tips repeatedly; it has been my experience to only find them present with rare occasion. The same I find to be true with regard to the "splinter hemorrhages" beneath the finger nail, the appearance of petechiae in the skin, being seen with somewhat greater frequency.

It is often difficult to be certain whether symptoms are septicaemic or embolic in origin, in particular when splenic enlargement, haematuria, or purpura occur. Purulent invasion of the tissues in the neighborhood of joints is a frequent occurance in the streptococcal type. Such an incident is quite distinct from the petechiae, and to be distinguished again in time, are the infarction. One may thereby be reminded that although petechiae are often regarded as embolic in origin, there is no proof of this.

A perivascular reaction to an exotoxin in the capillary arterial bed is most plausable as an explanation, or perhaps representing an allergic phase. Lesions, which are perivascular in nature and which occur about the joints producing redness and pain with occasional effusion into the joint cavity, are of great clinical importance. These little episodes, that usually clear away in three or four days, may be the one crucial symptom offered in evidence for the final determining diagnosis. By the same token I am pleased to present two rather recent cases of subacute bacterial endocarditis, that from the clinical point of view well illustrate early embolic phenomea.

Mrs. P. Mc N. a white female, aged fifty-four years, was first seen in the home March 15, 1940. Her complaint, and the initial one, was severe lacerating pain located at the distal end of the clavicle just inferior and mesially to the left shoulder joint. The pain had occured suddenly, was very sharp, and caused her acute distress. She had on the previous day not felt well, namely that of moderate lassitude; and upon questioning the patient was able to give account of a definite rigor, occuring some eight hours prior to her incident of pain. The temperature was found at this time to be 102 degrees, the pulse very rapid, but with no irregularity. Pallor of the skin was marked, with profuse sweating, the implication being that she was seriously ill. External heat was applied, and she was given a hypodermic of ⅓ gr. pantopon immediately. As she desired not to enter the hospital, her subsequent care was carried out in the home. The following day there appeared a small swelling the size of an apricot at the site of the painful area. The skin was slightly reddened, and very tender to palpation. The supposition was, that this may be followed by suppuration, which however was not the case. Temperature and pulse records kept daily revealed that her course of hyperpyrexia showed variations from 103.5 to 99.5 degrees, with no abatement of her extremely fast pulse rate. The pulse remained very rapid during periods of temperature moderation as well.

The irritability of the heart associated with a rapid pulse might serve to arouse suspicion that there be a cardiac foci present, when one is pressed to explain such behavior in the presence of toxemia, during an acute illness. This patient although very uncomfortable from her pain, was not clinically septic, nor did she present symptoms of an early septicaemia. Not until during the fourth week of her illness, could

there be elicited through ausculation of the heart, the presence of a murmur.

However, once established the murmur became more easily audible and very coarse during the next two weeks. The white blood count has remained rather constant at 20,000 cells. The blood culture on two occasions, during the first month of the disease, was found to be negative. There being very little doubt but that a positive culture is in the offering at a later date, as her clinical course would indicate.

Here we have I believe, an interesting and as well a good illustration of a perivascular lesion which has appeared EARLY, in a case of clinical subacute bacterial endocarditis. The location of the lesion is to my mind unusual and of added interest. The only other factor helpful from a clinical consideration was a history of inflammatory rheumatism at sixteen years of age. The patient is still under treatment, and remains unimproved.

The second case reported by Dr. Winstan L. Anderson, M.D., of Atchison, equally well illustrates the cardinal importance of early embolic incidence. His notations upon admission of the patient to the hospital are significant. The essentials of the hospital record are given:

Mrs. C. C. a white female, was entered in the hospital for observation and study. Her temperature was 101 degrees, the pulse rate 120 per minute. She was moderately undernourished, and quite pale. The chief complaints were; painful joints, specifically both of the ankles, which were swollen. The duration of the joint disturbances had been present for a period of three months. During this interval she felt certain that her temperature had been elevated during the day, with frequent occuring chills and she complained of mild gingivitis. The physical examination is as follows:

The tonsils are present and a chronic tonsilar infection is noted. The anterior cervical glands are enlarged bilaterally, and are slightly tender. The heart is not enlarged, with a regular rhythm, and a soft systolic murmur is audible over the base. Pelvic examination is negative with the exception of a chronic endocervicitis. Both ankle joints are moderately swollen and tender. The tenderness and swelling would seem to be not wholly confined to the joint, but rather periarticular in nature.

The urine contained one plus albumin, the examination of the blood reveals a hemoglobin of sixty-one per cent; R.B.C. 3,944,000; W.B.C. 7,700 with a color index of 0.8. The differential count: Polymorphnuclear cells are sixty-five, monocytes five and lymphocytes twenty-one. Transitional cells of the granulocyte series number six. The blood culture taken on the following day after admission, was negative after seventy-two hours. An additional culture following the first, was also negative for bacterial growth. The patient was dismissed from the hospital after three days confinement. The diagnosis at this time was septicaemia with a chronic tonsilar infection. The exciting factor producing the septic nature of her illness was thought to be an endocardial bacteraemia.

September 15, 1939, some three months after her first period of hospitalization, the patient was readmitted for further treatment. Her complaint at this time was; acute pain in the lower right quadrant of the abdomen, difficulty in breathing, and sweating with profound prostration. Examination demonstrated an area of dullness confined to the upper left lobe of the lung. For several days she had a moderately severe haematuria. Three days later she was removed to the St. Margarets hospital, Kansas City, Kansas. Death occured in that institution, and the diagnosis at necropsy was subacute and chronic bacterial endocarditis.

In this single case, for over a span of five months, we see repeated embolic insults with a latent developing septicaemia. There were no petechiae or peripheral embolic symptoms early, with the possible exception of the swollen tender ankle joints. Later during the terminal phase of her disease there occured multiple emboli. The blood culture on two occasions was reported as being negative. Repetition of the culture, I feel sure, would have at some time confirmed the clinical diagnosis.

COMMENT

The recording of these two cases would seem to indicate the general importance of:

1. Early occuring embolic incidence, either intra or extra articular in nature is most commonly seen in bacterial endocarditis.

2. That the sporadic showers of emboli may result only in transitory symptoms, or instigate the production of sustained pathological foci.

3. That there may be long intervals of time elapsing between the passing of one episode and the beginning of another.

4. That actual occlusive vascular effect with infarction may occur before any definite cardiac disorder is detectable.

5. That in any patient with a sustained temperature, remissive in kind, associated with a rapid irritable heart, should be held as being suspicious of an endocardial infection until proven otherwise.

6. In bacterial endocarditis the clinical diagnosis is of major importance, and frequently the only clue to the gravity of the disorder.

Accuracy of medical news increasing: "Only those closely associated with modern trends in publication are familiar with the vast improvement that has been taking place relative to the publication of news of scientific advances," The Journal of the American Medical Association for January 20 declares. "A bulletin recently issued by the United Press to its bureau managers and division managers is worthy of quotation. It reads:

" 'It seems advisable to restate our traditional policy concerning handling stories of "cures" or other medical developments.

" 'Under no circumstances put any story on the leased wire about a remedy. If the bureau manager is convinced that the story has merit, he should overhead it to New York for investigation and consideration there.' "

LIPOID PNEUMONIA*

WITH REPORT OF A CASE

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Lipoid pneumonia is a disease entity that can be said to result from treatment prescribed for the prevention, relief, or cure of certain other diseases.

It may be defined (Wolman[12]) as a low grade chronic reaction, local or generalized which results from the entrance of oily or fatty substances into the pulmonary alveoli. The consolidations are produced by tissue reactions to these foreign materials. The character and extent of the cellular reaction depends upon the chemical characteristics of the oily substance, its quantity, the quickness of introduction, and the age of the lesion.

The exact incidence of this condition is not known, but there is probably much more of it than is generally realized. To date approximately 212 cases have been reported in the literature. Its greatest incidence is in children under two years of age, but is also known to occur in older children and adults, especially those in a debiliated condition.

Lipoid pneumonia was first described by Laughlen[6] of Toronto in 1925 who reported the case histories and autopsy findings of three children and one adult. Since then much clinical and experimental work has been done on it and fully reported by Pinkerton[10], Goodwin[2], Pierson[8,9], Ikida[4], Wolman[12] and others.

After Laughlen's discovery of his four cases, he was able experimentally to produce the same pulmonary condition in animals. His conclusions were as follows: "That oil finds its way into the alveoli of the lungs, not only when introduced directly into the trachea, but also at times when administered in sufficient quantities into the nose and throat. Oil when present in the lung is actively phagocytized by endothelial cells which are present in sufficient quantities to dispose of all oil present and produce consolidation of the lung."

The oils most commonly associated with this condition are liquid petrolatum or mineral oil, and animal oils, such as cod liver, milk fat and lard oil. Pinkerton[10] demonstrated that lipoids of vegetable origin such as poppy seed, sesame and olive oil when introduced into the pulmonary alveoli produced very little reaction either cellular or humoral, and that they could remain in the lungs for a long period of time and were not digested. Furthermore this type of oil is easily removed from the lung by coughing, expectoration and postural drainage. This of course explains the relative harmlessness of the commonly used iodized oils. With mineral oil, however, Pinkerton found very active phagocytosis, since it is not hydrolysed, and is more readily emulsified than other. These enormous numbers of oil filled phagocytes lead to consolidation of the involved portion of the lung and their prolonged presence stimulates a gradual thickening and fibrosis of the alveolar walls. The oil filled phagocytes enter the lymphatics and pass to the regional lymph nodes, which may become plugged and lead to disturbances of lymph circulation.

Animal oils, especially cod liver, milk fat, and lard oil readily undergo hydrolysis in the lung liberating fatty acids, which produce a marked pulmonary reaction characterized by an intense serous and cellular response, oftentimes associated with hemorrhage, and focal necrosis. The end result of this intense inflammatory reaction is fibrosis and contraction of the lung. That acute infectious pneumonia may be superimposed in lipoid pneumonia is known, and is due probably to the reduced resistance of the pulmonary tissue because of interference with ventilation, bronchial and lymph drainage. That infectious organisms from the naso pharynx may be carried into the lung by the oil is also probable (Klinck[5].)

The gross pathologic appearance (Wolman[12]) of the lungs with lipoid cell pneumonia resembles that of acute broncho pneumonia with large and small areas of consolidation distributed thru air containing or edematous tissue. The lipoid containing areas are yellow or gray-white, and oil may exude from the cut surface. As before mentioned, animal oils may produce focal necrosis with abscess formation. The distribution of the lesions demonstrates their exogenous origin. The peri-hilar and dependant portions of the lobes are the most often affected and the right lung shows greater involvement than the left.

From a practical standpoint, this condition results most commonly from the use of oily nose drops in the treatment of upper respiratory infections. The mineral oil in the preparations is so bland that it can pass thru the naso pharynx into the trachea and oftentimes not even provoke a cough.

Equally important are the oils taken by mouth. Mineral oil given to an infant or small child to relieve constipation frequently causes choking and spitting at which time aspiration of some of the oil into the lung is probable. If this process is repeated often enough, large quantities of the material may be aspirated. The presence of general body debility, organic nervous system lesions, anomalies of the jaw or palate predispose.

*Read before the Golden Belt Medical Society, Junction City, April 4, 1940.

Marked resistance of a child to the taking of cod liver oil with gagging, spitting and choking can also result in aspiration. Regurgitation of milk and other fat containing foods with subsequent aspiration is still another source of danger especially since these substances are heavily loaded with bacteria. Mineral oil by mouth or via the nasopharynx, and cod liver oil are, however, the main etiological agents.

That this occurs most frequently in weakly debilitated children and adults is quite true, mainly because they are commonly kept in the reclining position, but it is by no means limited to that class of patients.

The symptoms of lipoid pneumonia are variable and there is no symptom complex that is pathognomonic of the condition. It should be strongly suspected in a weak, debilitated, marasmic infant or child, with a chronic brassy cough, a poor appetite, loss of weight or failure to gain, and recurrent attacks of what seems to be broncho pneumonia. If a definite history of medication with oil is obtainable, the possibility of lipoid pneumonia's being present is greater, and should provoke further investigation. Whether or not the patient is febrile depends on whether or not there has been secondary pulmonary infection.

The diagnosis is not always easy especially in the early course of the lesion. In reviewing the literature the statement "diagnosis was made at autopsy," appeared many times. As before mentioned it most commonly occurs in children under two years of age. It may occur in otherwise healthy children, but most commonly appears in those with such debilitated disorders, as rickets, prematurity, congenital syphilis, congenital heart disease, scurvy and eczema. Onset may be acute with fever and findings of broncho pneumonia, or have a more insidious beginning with loss of weight, retardation of growth, chronic deep and brassy cough, with recurrent bouts of fever until emaciation becomes extreme. Physical examination of the chest has not been found very satisfactory from a diagnostic standpoint, (Wolman[12]). Rales or impairment of the percussion note may at times be found, but as a rule no physical findings are present. This is due probably to the central position of the consolidation. The presence of oil filled macrophages in the sputum or stomach washings is of great significance, but is not found often enough to be of constant assistance.

The x-ray gives the most positive means of diagnosis, and yet there is no picture that can be considered entirely characteristic. From the roentgen standpoint three stages of the disease are recognized, mild, moderate and severe (Bromer[1]).

The mild with exaggeration of the hilar markings: In the moderate, involvement group there is greater density of the perihilar shadows with widening in all directions. The dense shadows spread more or less homogeneously in all directions from the hilum but are always greater in the right lung.

In the severe cases, the perihilar shadows spread well out toward the peripheries of the lungs, although a clear area is usually present between the dense shadows and the chest walls. The oily deposit may extend to the pleura in which case the dense area extends to the chest wall.

The edges of the lesions are either thoroughly demarkated or feathery.

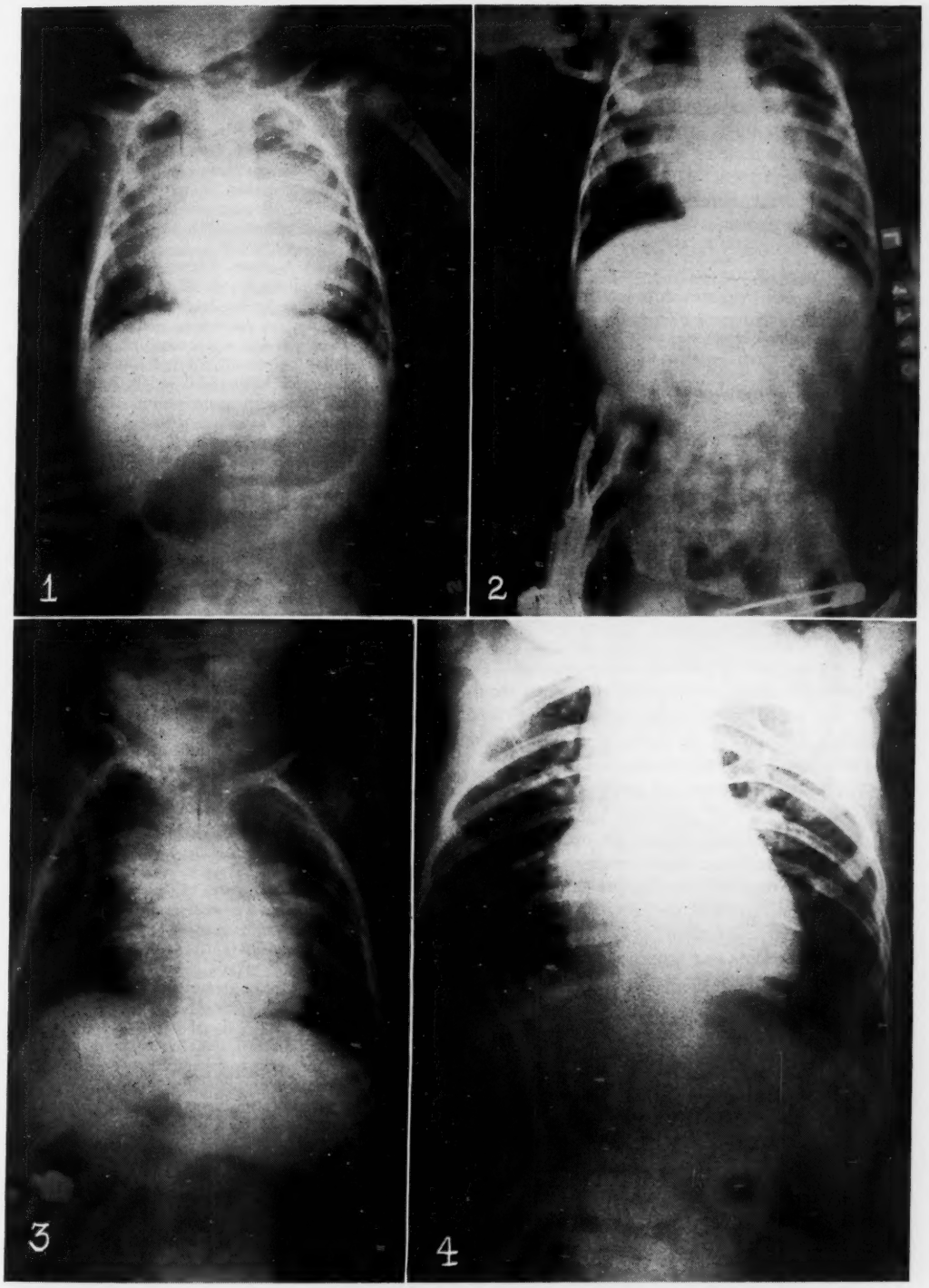
The most important thing is that serial pictures be taken over a fairly long period of time. Only occasionally is one picture diagnostic but a series of them may be. Serial pictures bring out the diagnostic fact that the shadows of involvement tend to remain the same size for months and in some cases for years, although some narrowing occurs with time. The clear area of the lung increases in size with growth of the child but the shadows decrease in size extremely slowly.

This condition must be differentiated from all other pulmonary conditions of a chronic nature. It must also be remembered that an acute broncho pneumonia may be superimposed with lipoid deposits as a predisposing factor. Tracheo bronchial tuberculosis can be ruled out with the tuberculin test. Lung abscess, lobular atelectasis, and bronchiectasis must also be considered.

As before mentioned a positive diagnosis depends on a history of oil aspiration and the finding of persistent infiltration of lipoid substances in the hilar regions.

Prognosis is reasonably good if the patient does not contract a secondary broncho pneumonia. It is obvious that a child with some congenital anomaly or constitutional disease has less chance for recovery than the otherwise healthy patient. Other things being normal, failure to gain, cough and anorexia fade away once the administration of the offending substance is discontinued. A less optimistic note is struck, however, by the fact that Monfort[7], in 1939 reported nine cases, eight of which died.

Treatment, first must aim at prevention. Cod liver oil should be fed to a child only when awake and in the erect or semi-erect position. Vitamin concentrates are much to be preferred to the bulk cod liver oil, since they are not so apt to produce resistance with consequent choking and aspiration. The use of oily nose drops should be condemned. Substitution of aqueous solutions of ephedrine for oily ones, by ethical pharmaceutical houses, came as a result of this danger. Mineral oil for the treat-



Illustrations show reproductions of chest x-rays of a case of lipoid pneumonia. (K.B. two and one-half months old.) Note persistence of perihilar opacity, with only gradual diminution of extent and density of the lesion, from the acute state of the disease, to two months later, to one year later, and finally to two years later.

1. February 18, 1938.
2. April 11, 1938.
3. March 24, 1939.
4. March 20, 1940.

ment of constipation should be discontinued or used with extreme care in infants, weak debilitated patients, and neurologic cases. And finally, great care must be exercised with children prone to vomit or choke on their foods. If gavage feeding is necessary, it should be done by an expert.

The active treatment of the condition must first be the withdrawal of the offending substance, followed by such measures as will prevent the child from upper respiratory infections.

Supportive measures such as frequent feedings, of high caloric diet, vitamin concentrates and blood transfusions are of course very helpful.

Although this paper has dealt mainly with lipoid pneumonia as found in infants and children, it is by no means unknown in adults. Debilitated oldsters with neurological lesions are particularly prone to develop it if mineral oil is used to aid elimination.

The Sea View Hospital for Pulmonary Diseases[11] has added to its routine questionnaire for history taking the question—"Do you use oily nose drops, and how long have you used them?" They have found a large incidence of lipoid lung irritation in chronic sinusitis patients who use oily ephedrine preparations.

SUMMARY

Mineral oil and certain animal oils when introduced into the lungs in sufficient quantities cause pulmonary reactions of an acute, or chronic nature known as lipoid cell pneumonia.

Mineral oil is phagocytized and deposited in the pulmonary alveoli and peri-hilar lymphoid tissue. Cod liver, lard and milk fat oils are hydrolized into fatty acids in the lung, which result in an intense inflammatory reaction, leading to consolidation, fibrosis and contraction of the affected portion of the lung. Secondary infection is frequently superimposed with consequent broncho pneumonia.

The condition most frequently occurs in infants and children under two years of age as the result of prolonged use of oily nose drops, aspiration of mineral oil used for the treatment of constipation or aspiration of cod liver oil.

The condition is more easily prevented than cured. Oily nose drops should never be used. Aqueous solutions of ephedrine are available if needed. Mineral oil by mouth for the treatment of constipation should be used with great care. Cod liver oil concentrates are highly preferable to the bulk forms, since the concentrates do not provoke so much resistance with consequent gagging and aspiration.

CASE REPORTS

K. B. male infant two and one-half months old first seen February 6, 1938. The mother related the following complaints; loss of weight, vomiting, fever, cough and no appetite.

The child's history was as follows: Normal birth, the third born of a mother of twenty-two years. Birth weight eight pounds. The attending doctor told the family that the baby was normal at birth, and it continued to do well until it was about three weeks old when it contracted an upper respiratory infection. From that time on until first seen by us he became worse, running an irregular fever with cough, vomiting persistent loss of weight and constipation.

Examination. A male infant two and one-half months old appearing acutely ill. The skin was loose and dehydrated and emaciation was marked. The child had a grunting respiration and occasionally a brassy cough which was accentuated when the child was turned on his right side. Rectal temperature 102 degrees, pulse rapid but regular, weight eight pounds three ounces, just three ounces over birth weight. The lungs were negative to physical examination except for a few scattered rales. Abdomen negative for palpable masses and neurological examination negative. The urine had a trace of albumin but was otherwise negative. Blood — red cells, 4-600,000, hemoglobin eighty-nine per cent, while cells 10,000 with normal differential. The blood Wasserman was negative. Tuberculin test with PPD number one was negative.

After this examination an tentative diagnosis was made of marasmus secondary to a feeding problem. The child was admitted to the hospital and placed on frequent feedings of high caloric formula with intramuscular thiamin chloride and saline subcutaneously. At this time it was noted that the child lay continually on its left side, so much so in fact that a marked flattening of the left rib cage had taken place along the anterior axilliary line. Furthermore when the child was turned on the right side, shortness of breath with cyanosis and cough developed.

X-ray of the chest showed a dense opacity extending out from the hilum in both directions, but to a greater extent on the left. The edges of this opacity were feathery. A lateral view of the chest showed this opacity to be in the area of the posterior mediastinum. No diagnosis was made at that time.

In spite of the treatment the baby continued to vomit most of the food and the temperature remained around 103 to 104 degrees rectal. In addition a few days after admittance to the hospital, projectile vomiting occured along with definite rigidity of the neck. A spinal puncture done at that time revealed a normal fluid under no increase in pressure and negative to laboratory examination.

Weight two weeks after institution of treatment was seven pounds fifteen ounces.

At this time the child was seen by a pediatrician and the chest plates by two roentgenologists whose conclusions were that this was probably an atelectasis. Carbon dioxide oxygen hyperventilation and blood transfusions were advised. Feeding was done by eye dropper and even at times by gavage in an effort to save the strength of the baby.

On about March 8, 1938, one month after admittance to the hospital the babies temperature returned to normal but the general condition had become worse, the weight at that time being seven pounds thirteen ounces and cough and cyanosis much

more severe. The baby had been given four transfusions of citrated blood and hyperventilation had been continued at intervals until the cyanosis became so marked that this was considered no longer advisable. The x-ray examination of the chest showed no improvement.

Because of the apparent progressiveness of the childs condition and the feeling that I could do nothing more, the family were allowed to take the baby home, but were instructed to return at intervals of a week for a blood transfusion as this was apparently the only measure that showed any evidence of giving improvement. The mother continued feeding essentially as done in the hospital and much to my surprise the child began to show considerable improvement a week or two after returning home. Three transfusions of citrated blood were given at intervals after discharge from the hospital. Although weight stayed almost stationary at eight pounds for the succeeding three months the child was eating and retaining most of its food and the coughing and attacks of cyanosis became less frequent. Chest pictures taken at intervals showed very little improvement or regression in the size of the perihilar opacity. The deformity of the chest was greatly improved.

In August of 1938, seven months after institution of treatment the childs weight was nine and one-half pounds and since that time weight gain and general body development has been at a normal rate so that on March 20, 1940, the child weighed twenty-six pounds and seemed normal in all respects. The mother reports that when the child has a cold an unusually harsh cough occurs. A chest plate taken March 20, 1940, shows definite diminution in the size and density of the opacity but with a rather large amount of it still remaining in the left lung field.

In July, 1938, while in Boston the chest x-rays were seen by Dr. A. O. Hampton at the Massachusetts General Hospital and he made the diagnosis of lipoid cell pneumonia. The mother was contacted as soon as possible and questioned concerning oil medication, and she said, "Oh yes, when the baby had the cold when three weeks old he became constipated and we gave him mineral oil. I believe we gave him a quart or more in a month."

In view of the history of oil medication, the clinical symptoms and progress and especially the x-ray findings, I present this case as one of lipoid cell pneumonia. That the greatest concentration of oil in this case was in the left chest rather than the right is due to the fact that the mother kept the child lying on its left side.

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"Within ten days more than 40,000 physicians returned their questionnaires to the headquarters office of the American Medical Association supplying information to be used in the campaign for medical preparedness," The Journal of the American Medical Association for July 27 reports in an editorial. "An especially augmented staff is already at work checking the replies and preparing punch cards which will be used in making the selection of men for functions in preparedness and functions in any national emergency which may develop.

"Every physician should return his questionnaire as soon as possible. Ultimately a punch card will be prepared for each physician in the United States, since it is necessary that every physician be represented in the file. If there is national conscription, physicians will be called as are other citizens of the United States. Great advantage to the physicians, to the Army and Navy Medical Departments, to the United States Public Health Service, and indeed to the country as a whole lies in the development of this material. With the full information once supplied, it will be possible to a considerable extent to fit every physician into work for which he is best suited.

"On July 19 the Committee on Medical Preparedness met in the headquarters office of the American Medical Association with representatives of the United States Army and Navy and Public Health Service. Plans were discussed for utilization of medical personnel. There begin to be indications of the many needs which must be filled in the future. Tremendous expansion of industries associated with the manufacture of munitions and military supplies will require numbers of industrial hygienists, physicians and surgeons far beyond the number now available. Examination of many thousands of men associated with the setting up of recruiting centers, training forces and for similar objectives will again require the services not only of physicians capable of conducting routine examinations but of specialists in every medical field. Particularly important are pathologists, clinical pathologists, roentgenologists (x-ray specialists) and experts in the field of cardiology (study of the heart), tuberculosis and nervous and mental diseases. Finally, it is absolutely necessary to assure continuity of medical service for the civilian population.

"Arrangements were made to utilize state and county societies in the extension of this work. If a physician fails to return his questionnaire, it will become necessary to ask his colleagues and his state and county medical society to be of service in determining why the physician failed to cooperate and insure the eventual return of the information.

"At a time when the nation may need the service of every patriotic citizen, the physician owes this obligation to the country and to himself. In a few instances cards and notes have been received from physicians indicating that their sympathies do not lie primarily with the needs of the country. It would be unfortunate indeed if any considerable number of physicians adopted such a point of view. The more promptly the questionnaires are returned, the greater will be the possibility of eventual action. The more accurately the information is supplied the more rapidly will it be codified. It is not only the medical profession that is on trial in this instance but democracy itself."

President's Page

To the Members of The Kansas Medical Society:

The medical preparedness campaign is getting under way. It is essential that all questionnaires sent to the physicians of our state from the American Medical Association office be completed and returned at once. It is to be hoped that the office of each county medical society will poll their membership to ascertain whether or not this part of our job has been completed. We must not fail to meet this obligation—get the job done in your county today.

Matters of social and political interest to all medical men must not be overlooked. From now on, until county, state, and national elections are over, it is essential that we concern ourselves with the idea of placing men in office who have demonstrated by word or deed their desire to preserve our American institutions, our American customs and our American way of life. We must not fail to meet this obligation. There are those among us who meet this obligation as a matter of daily routine from one year's end to the next. May we all appreciate the necessity of such action and put our shoulder to the wheel today.

Sincerely,

Loren L Loveland M.D.

President, The Kansas Medical Society.

EDITORIAL

FALL CLINICS

Each fall, the physicians of Kansas have unusual educational opportunities through the courtesy of our neighboring states, Missouri, Nebraska and Oklahoma. These opportunities are made possible through the efforts of the members of "The Kansas City Southwest Clinical Society," "The Omaha Midwest Clinical Society" and "The Oklahoma City Clinical Society" in fostering their respective annual clinical conferences.

The physicians of Kansas are cordially invited to attend all sessions of these clinics and the entertainment features that are offered. The geographical location of the clinics, one to the south, one to the east and one to the north, makes at least one clinical conference in easy driving distance of each of our members.

The Kansas City Southwest Clinical Society will hold its annual fall conference at the Municipal Auditorium on September 30, October 1, 2, and 3, 1940. The program as arranged has been kept free of ultra-scientific papers, all of the subjects being of prime importance to all physicians, be they general practitioners or specialists. The speakers include eighteen distinguished guests from the various medical centers of the United States and Canada. The addresses are arranged so that there is; one general assembly daily, round table luncheons daily, a panel discussion on anemia on Monday evening and a panel discussion on heart on Tuesday evening. The scientific exhibits promise to be very good and in addition there will be the usual technical exhibits.

This program and clinical conference is supported through the medium of active and associate membership dues. The associate memberships are available to all members of The Kansas Medical Society and the amount of the dues is five dollars per year. This membership not only gives one the privilege of attending the fall conference but also a subscription to "The Kansas City Medical Journal," which is published monthly and contains many articles of scientific interest as well as news pertaining to the Clinical Society.

The Omaha Midwest Clinical Society will hold its Eighth Annual Session October 28 to November 1, inclusive, in the Hotel Paxton, Omaha, Nebraska. The members of this Society, through conscientious planning and financial support, each fall produces this conference for the good of its members and the invited physicians. The registration fee for guests is five dollars.

The program is well balanced, intensive and concise and any physician attending can get a wealth of information of the newer methods of diagnosis and treatment as well as a review of the time tried methods, in the short period of five days. The guest speaker roster includes seventeen distinguished physicians, who are authorities in their various fields. The entire day, Friday, November first, has been set aside for a symposium on anemias.

The Tenth Annual Fall Clinical Conference of The Oklahoma City Clinical Society will be held at the Oklahoma Biltmore Hotel in Oklahoma City on October 28, 29, 30, and 31, 1940. Seventeen outstanding leaders of medicine and surgery will present their experiences and opinions on medical probiems during the four days of this conference. There is a registration fee of ten dollars which covers all of the features at the clinics, including scheduled dinners, luncheons, postgraduate courses and the annual smoker.

The program is diversified and well balanced and is arranged primarily for the benefit of the general practitioner. The meeting is an intensive postgraduate course broken by well timed hours of pleasure.

For further information regarding the Conference of The Kansas City Southwest Clinical Society and the Oklahoma City Clinical Society, consult their advertisements in the advertisement section of this issue of the Journal.

The physicians of Kansas are grateful for the privilege of attending the fall conferences of the clinical societies of our neighboring cities. For those of you who have not attended the previous meetings of these societies, just talk to some of your medical friends who have. They are enthusiastic about the meetings and the way that they have been conducted, as well as the friendly spirit and wel-

come that prevails among the hosts. Plan now to attend one or more of the annual fall conferences of Kansas City, Omaha, or Oklahoma City.

BOOKS

The Society has during the past several years donated a considerable number of books to the stacks of the Stormont Medical Library, which is located in the State House in Topeka. Thirty-two books were placed there recently and approximately fifty additional ones will be placed in the library within the near future.

Books given by the Society consist mainly of those forwarded by publishers to the Journal for review. Books received in this manner are reviewed by members who are good enough to assist in that regard and reviews that they prepare are published in the Journal, from time to time.

During 1939 and 1940 review books were received from the following publishers: The Commonwealth Fund, 41 East Fifty-seventh Street, New York; America's Future, Inc., 205 East Forty-second Street, New York; P. Blackston Co., Philadelphia, Pa.; Harvest House, 70 Fifth Avenue, New York; Lea & Febiger, 600 Washington Square, Philadelphia, Pa.; J. B. Lippincott Co., Washington Square, Philadelphia, Pa.; C. V. Mosby Co., 3525 Pine Blvd., St. Louis, Mo.; Whittlesey House, New York; The Year Book Publishers, Inc., 304 South Dearborn Street, Chicago, Ill.; Little Brown & Company, 34 Beacon Street, Boston, Mass.; The McMillan Company, 60 Fifth Avenue, New York; F. A. Davis Co., Philadelphia, Pa.; Public Relations Bureau, Medical Society of the State of New York, 2 East 103rd Street, New York; Princeton University Press, Princeton, N. J.; W. B. Saunders Co., Philadelphia, Pa.; Harcourt, Brace & Co., 383 Madison Avenue, New York; The Greystone Press, 40 East Forty-ninth Street, New York; Duke University Press, Morningside Heights, New York; M. Barrows & Co., 286 Fifth Avenue, New York.

The Editorial Board wishes to thank the publishing houses who have been good enough to furnish the Journal with such a splendid class of medical material and the Journal also appreciates the excellent assistance numerous members have provided in the reviews.

H. J. Bigelow said of Oliver Wendell Holmes, "he could get what he wanted out of a book as dexterously, as neatly, as a rodent will get meat out of its shell." A doctor should remain a student all of his days, utilizing libraries to help in carrying on his postgraduate education.

The Journal is also at the present time receiving some 115 exchange Journals from all parts of the world. The most distant points from which journals are received are: Argentine; London; Japan; Calcutta, India; Banga, Punjab, India; Hawaii; Ghent, Belgium, and Manila, P. I. This month the Journal received the entire yearly publication for 1939 of the Bulletin of Biology and Medicine of Moscow, U.S.S.R., with a request for an exchange.

If you have not completed your medical preparedness questionnaire, please do so immediately and forward it to the American Medical Association.

If you have not received a copy of the questionnaire, the central office of the Socity will furnish you one.

THE RAMPARTS WE WATCH

The business of preparing for the defense of the nation goes steadily on. Medicine has a quietly important part in these preparations and it is reassuring that the American Medical Association and the state medical societies have a leading position in mobilizing the medical forces. Aging veterans of 1917 wistfully hope that some of the outworn conceptions and traditions of the "Old Army" will not confuse things quite so much this time and that first things will come first. Perhaps it will be realized that a competent civilian surgeon can be a valuable man around the operating room in a base hospital, or even in a mobile unit in the zone of the advance without having to spend weeks learning how to steer an ancient calvary mount across the plains of Kansas. Maybe pathologists may go their way about their laboratories unhampered by boots and spurs, and x-ray people left to their tasks with no knowledge of how to keep house in a pup tent. Come what may in this adventure, horses in Kansas, boots and spurs in New York and pup tents in Georgia, Connecticut will do her part.—The Connecticut State Medical Journal, September, 1940.

CANCER CONTROL

TUMORS OF THE SALIVARY GLANDS

Cecil D. Snyder, M.D.

Winfield, Kansas

There are three kinds of epithelial tumors which commonly involve the salivary glands, namely:

1. The benign adenoma.
2. Malignant adeno-carcinoma (which I shall discuss and call cancer).
3. Mixed tumors.

Ninety per cent of tumors of the salivary glands involve the parotid glands. The submaxillary gland is rarely involved. The involvement of the sublingual gland is extremely rare. A tumor of any of these glands may be the result of calculus in the duct or any of the contributory ducts by which these glands drain. These tumors will not be discussed.

It is interesting to note that the nasopharynx or soft palate may be the primary site of growth. In addition the oral cavity may be involved, the tumor appearing about the orifices of the salivary ducts or within the substance of the lip, the base of the tongue, or the cheek.

Benign adenoma of the salivary glands is rare and slow growing, the only danger being that there is a possibility of it becoming cancerous; particularly those occurring about the nose and upper lip. These tumors are usually firm and smooth, though they may become cystic. At times their size causes an unsightly appearance, and in addition, pressure symptoms may result in facial paralysis, due to the involvement of the facial nerve.

True, cancer of the salivary glands is by no means rare; neither is the occurrence of mixed tumors. In the oral cavity malignant tumors most often occur as hard, irregular, elastic masses, situated either around the orifices of the salivary ducts, within the substance of the lip, the base of the tongue, or the cheek. These tumors commonly appear to be opaque. The nasopharynx and soft palate are often the primary site of growth. The mass develops rapidly; at first it is encapsulated, but very soon invades the surrounding tissue. Or, in case it is located in the parotid gland, it involves the whole gland, capsule, and regional lymph nodes. Bone metastasis in the case of this gland growth is common and early. Symptoms are usually produced by the size of the tumor and the pressure resulting therefrom. Those tumors occurring near a bone are usually accompanied by much pain.

Mixed tumors of the parotid gland are frequently encountered. The origin of these tumors is a matter of discussion. According to present concept these tumors may be of epithelial or endothelial origin, or may be the result of embryonic rests present in the gland. Mixed tumors are characterized by a tendency to local recurrence. It is important to note that if the tumor is inadequately removed, the recurrences are very apt to become malignant. Also, mixed tumors may remain benign for years and then become malignant. Facial nerve paralysis is suggestive of malignant change.

Complete extirpation of these tumors is oftentimes very difficult because of their location, as the majority of these tumors occur in the parotid gland and very frequently surround the facial nerve. Extreme care must be observed in their removal to prevent damage to the facial nerve.

Following the removal of these tumors, salivary fistula is the usual thing, lasting from one to two weeks. Pre- and post-operative x-ray in the handling of these tumors may be advisable. It is well to remember, if the tumor is malignant, it is cured only by complete extirpation early, before matastisis has taken place. If the tumor has not been completely removed, irradiation, pre- and post-operative, may delay its recurrence, but will not effect a cure in the case of carcinoma.

Differential diagnosis of benign and malignant tumors is often difficult.

Benign tumors shrink rapidly after irradiation, while malignant tumors are rarely benefited by x-ray. However, the capsule becomes markedly more tough following irradiation, making surgical removal easier, even in the case of cancer of the gland. Pre-operative x-ray is oftentime a valuable diagnostic procedure. Accurate diagnosis of the tumor involved, however, is made only by microscopic examination, after removal of the tumor.

The prognosis of carcinoma of the salivary glands is only fair. Metastasis is early and recurrence following removal is common. Early recognition of these tumors with complete removal offers the best hope of permanent cure.

The treatment of all tumors of the salivery glands, except the hopeless advanced malignancies, is complete extirpation. In malignant tumors the entire gland and its cervical lymphatics must be removed.

Patients should be warned of the danger and possibility of facial paralysis following operation. Frequently there will be a facial paralysis for a period of anywhere from four weeks to three months, due to swelling in the facial nerve, even though the nerve has not been cut during the pro-

cedure. Here, as elsewhere, early recognition is an all-important factor. Complete extirpation of the tumor early will effect a cure.

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TUBERCULOSIS CONTROL

EXERCISE IN TUBERCULOSIS*

William J. Habeeb, M.D.

There is still a wide divergence of opinion among tuberculosis physicians concerning exercise in the treatment of tuberculosis. Aside from the judgment of the physician, the time to start exercise and the amount to be taken are dictated by the physical makeup of the sanatorium and by the size of the nursing staff. For example, in the cottage type of sanatorium, patients get more exercise going to meals than in a sanatorium built entirely under one roof; and where there is a shortage of nurses the patients do more for themselves.

Tuberculosis specialists differ in their views as to what constitutes exercise. Those who believe in strict bed rest will consider every activity of the patient short of resting quietly in bed as exercise. Sitting up in bed, writing letters, drawing, knitting and so on are exercise by that standard. Others hold that only such activities carried on after the patient is clothed and ready for outdoor walks, merit the term exercise. The majority steer a middle course between those two extreme views.

Patients do not react alike to the same amount of exercise; mild exercise for one patient may be strenuous exercise for another even though the patients have a comparable disease. In general, any activity which produces severe fatigue should be halted, for fatigue is a symptom of overstrain.

Exercise should be prescribed and graduated according to the individual need of the patient. Malaise, fever, rapid pulse and marked fatigue are constitutional symptoms indicating a toxic systemic reaction, and any patient with these symptoms should be in bed. Regardless of the x-ray, the sedimentation rate or the sputum contents, constitutional symptoms must be treated by strict bed rest. To treat every patient regardless of symptoms, or lack of symptoms, with strict bed rest is extreme.

Apparently comparable cases of tuberculosis, which have practically the same amount of disease by x-ray, seldom have the same symptoms to the same degree. One must distinguish between local and constitutional symptoms in tuberculosis just as one must distinguish between local and constitutional symptoms if one treats a boil. A boil produces pain, swelling, redness and local heat and can be treated as a local affair, usually. But if the patient develops malaise, fever, and loss of appetite the boil ceases to be a local affection and the constitutional symptoms demand the patient be put to bed and adequate systemic measures be used. The same holds true in tuberculosis even though many sanatoria have lost sight of such a fact. Local symptoms and constitutional symptoms have a far different meaning, and any patient with constitutional symptoms should be on fairly strict bed rest until all constitutional signs and symptoms subside and the disease becomes stabilized. After that he may be allowed a graduated amount of exercise if other signs are favorable.

Patients with minimal disease and positive sputum whether they have cough or not should be in bed also. There are a few patients who raise positive sputum without coughing. They believe that the sputum raised is not sputum in the true sense unless they cough it up and many must be coached in order to produce a specimen of sputum for examination without undergoing gastric lavage. Exercise in such patients should not be permitted until a sufficient period of bed rest or a collapse measure in addition to bed rest has converted the sputum and given the disease time to become stabilized.

No patient with active tuberculosis regardless of the stage of the disease or the presence or absence of symptoms should be allowed to indulge in any activity to the point of fatigue.

In most sanatoria the amount of exercise is regulated but when the patient leaves exercise cannot well be controlled. Especially in those instances where the economic status requires the patient to work, a rehabilitation program covering a period of months is absolutely necessary. Arrested tuberculosis is not healed nor cured tuberculosis, yet patients are discharged from sanatoria as arrested cases whose only alternative is to go to work in order to support themselves. The greatest necessity in the field of tuberculosis at the present time is a rehabilitation program.

A few chest specialists allow their patients an amount of exercise almost equivalent to the regimen of one on vacation. Such physicians seem to feel that the mental state of the patient is so important in the healing of tuberculosis that a great deal of activity is justifiable in order to keep the patient from becoming introspective. The relationship between a patient's immunological reaction to disease

and his introspectiveness has never been proved and has no factual basis. Rest will heal tuberculosis. A healthy mental outlook without physical rest is not sufficient for the healing of tuberculosis.

Another theory of the exercise extremists is a fatalistic one which also calls on biological immunity and resistance for support but here again the facts do not support the theory. The extremists justify the exercise in the mistaken belief that a patient with average resistance will heal his tuberculosis even on exercise while no amount of bed rest will cure a patient who doesn't have average resistance. The idea is truly fatalistic. Conservatism in exercise is necessary for a favorable result in the majority of cases of tuberculosis. Rest is the greatest single factor in the healing of tuberculosis exclusive of collapse measures.

The general use of collapse measures such as pneumothorax has changed the course of the disease in thousands of cases. Too often the patient is put back on his feet immediately because of the improvement following collapse. In some clinics patients are not even put on bed rest during the pneumothorax induction period. But an immediate satisfactory collapse does not mean that the disease is healing—collapsed disease is not healed disease. Spreads do occur in well collapsed lungs, empyema frequently occurs and new disease often appears in the contralateral lung. Patients with well collapsed fresh disease should not be allowed exercise immediately no matter how well they look or feel. Collapse measures are not a substitute for bed rest. A well regulated rehabilitation program will prevent relapse in many cases.

*From: Tuberculosis Abstracts, September, 1940. Exercise in Tuberculosis, A Plea for Conservatism, by William J. Habeeb, M.D., Ohio State Med. Jour., Vol. 36, No. 6, June, 1940.

NEWS NOTES

If you have not completed your medical preparedness questionnaire, please do so immediately and forward it to the American Medical Association.

If you have not received a copy of the questionnaire, the central office of the Society will furnish you one.

POLIOMYELITIS

The Kansas State Board of Health forwarded the following communication on Setember 3 to all county health officers:

Dear Doctor:

Under date of Setember 2nd, a telegram was sent to your address, as follows:

"Recommend public and parochial schools not be opened pending developments in the poliomyelitis situation over the state."

Every county and city health officer knows his local situation and should govern himself accordingly. Owing to the fact that the Kansas statutes require that children attend school, it is our opinion that there are no monetary or educational reasons that would justify those in authority in taking any avoidable risks.

Our advice to parents has been that all children should avoid contacts with persons outside the immediate family. It has been proven, over and over, that this precaution will prevent the occurence of cases. As far as public gatherings, picture shows, etc., there is no law that compels anybody to attend these places. If children attend with the consent of parents, they, alone, are responsible if their children contract poliomyelitis.

If, in your best judgment, the local conditions in your county do not warrant the following of the procedures recommended in our telegram, you are at liberty to take whatever steps you deem practical.

We enclose the comparisons, week by week, of the 1930 and 1940 cases.

If new cases develop in your jurisdiction, notify us by telegraph—collect.

Yours very truly,

F. P. Helm, M.D.,

Secretary and Executive Officer.

Following a special meeting of the Board held in Topeka on September 9 to discuss the poliomyelitis epidemic, another communication was sent to the county health officers, the county superintendents and the secretaries of the county medical societies:

A motion was made, seconded and carried, that "The Kansas State Board of Health recognizes that the infantile paralysis problem is so vastly different in various counties of the state that no set rule can be formulated to fairly govern or rule the entire problem of the state; therefore, it is resolved that each county health officer of the state in conjunction with the medical men and the school authorities, should decide the problem of whether or not to close the schools in each individual community. In the event there is disagreement, or there is need of additional information, the State Board of Health will send a representative to each county to assist in solving the problem. Be it further recommended that in communities where a decision is made to keep schools closed, that a request be made that all children under fifteen years of age not attend public gatherings.

As of September 13, 287 cases of poliomyelitis had been reported in the state.

STATE MEETING COMMITTEES

The Shawnee County Medical Society has announced the following committees which will have charge of arrangements for the 82nd Annual Meeting to be held in Topeka on May 12-15, 1941: Dr. J. L. Lattimore and Dr. L. L. Saylor, Co-general Chairman. Dr. W. H. Weidling, General Treasurer.

Program: Dr. O. R. Clark, Chairman, Dr. L. R. Pyle, Dr. D. C. Wakeman, Dr. B. I. Krehbiel, Dr. B. J. Ashley, Dr. H. L. Kirkpatrick.

Scientific Exhibits: Dr. B. B. Trees, Chairman, Dr. A. K. Owen, Dr. P. E. Belknap, Dr. R. B. Stewart.

Commercial Exhibits: Dr. L. A. Smith, Dr. M. E. Pusitz, Dr. S. H. Boyd, Dr. G. F. Helwig.

Golf and Trap: Dr. E. H. Decker, Chairman, Dr. R. P. Knight, Dr. H. W. Powers, Dr. F. C. Boggs, Dr. R. J. Miller, Dr. H. J. Davis.

Banquet-Entertainment: Dr. H. L. Kirkpatrick, Chairman, Dr. G. L. Kerley, Dr. F. L. Ford, Dr. H. H. Woods, Dr. H. B. Talbot.

Accommodations: Dr. L. E. Eckles, Chairman, Dr. C. K. Schaffer, Dr. F. P. Helm, Dr. E. J. Rose.

Arrangements: Dr. Guy Finney, Chairman, Dr. F. C. Taggart, Dr. J. D. Bowen, Dr. H. T. Morris, Dr. A. J. Brier.

Publicity: Dr. H. L. Clark, Chairman, Dr. P. M. Powell, Dr. W. W. Reed.

Ladies' Entertainment: Shawnee County Auxiliary.

CONFERENCE OF SECRETARIES POSTPONED

The Board of Trustees of the American Medical Association has decided that the Annual Conference of Secretaries of Constituent State Medical Associations will not be held this year.

Major reason given for the postponement of the meeting is the tremendous volume of work which has been undertaken by the Association in connection with the Medical Preparedness Program and the belief that all available time will be required for this purpose during the remainder of the year. It is believed that the usual meeting will be held in 1941.

NEW A. M. A. DIRECTORY

The Society office recently received the new sixteenth edition of the American Medical Association directory. It is interesting to note an increase of 6,188 physicians throughout the country. Death has removed 7,586 and there is an addition of 13,798 names. New York has the largest increase, with 1,783 physicians listed and in the Southern States there is a noticeable decrease in numbers. The division of the directory for Kansas listed 2,117 physicians in 1938 and in 1940 there are 2,070. The 1938 record gives Kansas the number of hospitals, sanatoriums and related institutions as 117 and in 1940 this number is increased to 120.

SCIENTIFIC EXHIBITS

Those desiring to exhibit material of scientific interest at the eight-second meeting of the Kansas Medical Society in Topeka, please write Dr. Clyde Trees, chairman of the Scientific Exhibits Committee, at 706 Mills Building, Topeka, Kansas, before November 1.

COMMITTEES

A meeting of all Society committee chairmen will be held during October to discuss the plans and projects each will sponsor during the present year.

The Committee on Conservation of Eye Sight, the Committee on Control of Cancer, and the Committee on Child Welfare have held recent meetings.

The Committee on Locations recently forwarded a bulletin to various intern and resident centers advising that Kansas has a few available locations and that it will assist physicians desiring locations in all ways possible.

The Committee on Study of Heart Disease and the Committee on Child Welfare are planning state-wide postgraduate courses which will be held in the near future, The Committee on Maternal Welfare has recently completed a brochure on that subject which will be published soon and made available to all physicians. The Committee on Control of Cancer has furnished to the Kansas Womens Field Army an article on cancer quacks which is to be distributed throughout the state. The other Society committees are making plans to renew their work following the inactivity during the summer.

MEETING

Dr. F. L. Loveland, of Topeka, the Kansas chairman of medical preparedness, will attend a meeting on that subject, which is to be held at the headquarters of the American Medical Association in Chicago, on September 20-21. The members of the A.M.A. Committee on Medical Preparedness, officials of the War Department and other agencies and the state medical preparedness chairmen will attend.

ADVERTISING

The National Physicians Committee for the Extension of Medical Service has prepared mats of the advertisements pertaining to socialized medicine, recently published in the Saturday Evening Post. The mats which are suitable for newspaper use will be given to any interested county medical society, pharmacists or other sources who desire to sponsor the advertising. The advertisements have appeared in newspapers in various parts of the country.

RE-REGISTRATION

Under the annual re-registration law, all Kansas doctors of medicine must re-register their licenses by October 1 of each year. The Kansas Board of Medical Registration and Examination forwards notice blanks to each physician and a remittance of $1.00 should be returned to Dr. J. F. Hassig, 804 Huron Bldg., Kansas City, Kansas.

COUNCIL MEETING

Dr. F. L. Loveland has called a meeting of the council which will be held in Topeka on Sunday, September 22, commencing at 2:00 p.m.

Matters pertaining to medical preparedness and other subjects in which the organization is interested will be discussed.

COUNTY SOCIETIES

The Butler-Greenwood County Medical Society held a meeting in El Dorado on September 13 at the Susan B. Allen Hospital.

The Central Kansas Medical Society held a meeting September 12 in Ellsworth. Dr. James S. Hibbard of Wichita, spoke on "Diagnosis and Treatment of Acute Head Injuries"; Dr. Vincent L. Scott of Wichita spoke on "Convulsions in Infancy and Childhood" and Dr. Wirt Warren of Wichita spoke on "Practical Aspects and Differential Diagnosis of Hyperthroidism."

The Douglas County Medical held a meeting in Lawrence on September 3.

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"Clinical Electrocardiography" and "Cardiovascular Diseases" belong in your library. Send for them today!

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Dr._____

Address_____

The Ford County Medical Society held a business meeting on September 13 in Dodge City.

The Leavenworth County Medical Society held a meeting on September 9. Dr. F. L. Loveland, president, of Topeka, was the guest speaker.

The Pratt County Medical Society will hold a meeting on September 27 in Pratt. Dr. F. L. Loveland of Topeka will be the speaker.

The Sedgwick County Medical Society will hold their fourteenth annual golf tournament at the Crestview Country Club in Wichita on September 20. There will be skeet, trap, pistol and rifle shoots for the members who do not care to play golf.

The Shawnee County Medical Society held its annual social meeting on September 5 at the Shawnee Country Club in Topeka with golf and bridge for entertainment followed by a dinner.

The Washington County Medical Society held a meeting on September 10 in Washington. Dr. John Porter of Concordia and Dr. F. R. Croson of Clay Center were guests.

The Wyandotte County Medical Society held a meeting on September 10 in Kansas City. Speakers were: Dr. Donald N. Medearis of Kansas City, who spoke on "History of Pediatrics"; Dr. John A. Billingsley, of Kansas City, who spoke on "Trachoma," with the discussion by Dr. C. J. Mullen, of Kansas City; and Dr. L. B. Gloyne, of Kansas City, who presented colored movies of army maneuvers.

The Emporia Gazette recently published a story by Mr. Wm. Humphreys on the installation of new equipment at the St. Mary's Hospital of Emporia. The hospital has been accredited by the American Hospital Association and it has been announced that it will receive American College of Surgeons, approved in October.

MEMBERS

The American College of Chest Physicians recently announced the certification of Dr. A. L. Ashmore of Wichita.

Dr. S. L. Stout, former superintendent of the county hospital in Wichita, has opened an office for private practice in that city.

Dr. Wendell A. Grosjean, formerly of Colby, will be associated with the Snyder-Jones Clinic in Winfield, it is announced. Dr. Grosjean has ben engaged in post-graduate work at the University of Kansas Hospitals for the past year.

An article by Dr. C. A. Hellwig of Wichita entitled "Routine Micro-filming of Tumor Slides" was published in the August issue of the Technical Bulletin of the Registry of Medical Technologists.

The article "Clinical Illustration of Acid-Base Imbalance" by Dr. Frank C. Neff, of Kansas City, Missouri, which was published in the May issue of the Journal was abstracted in the August issue of the International Medical Digest.

Dr. G. R. Peters of Kansas City has announced he will establish an office in Cameron, Missouri.

Dr. Paul T. Petit of Goodland has moved to Kansas City where he will take a year of post-graduate work.

Dr. John W. Turner of Wichita has been named as an assistant Sedgwick County Health officer.

DEATH NOTICES

Dr. Charles E. Ressler, 70 years of age, died July 16 at his home in Anthony, of arterial hypertension and general arteriosclerosis. Dr. Ressler was graduated from the Hahnemann Medical College in Chicago in 1896. He was a member of the Harper County Medical Society.

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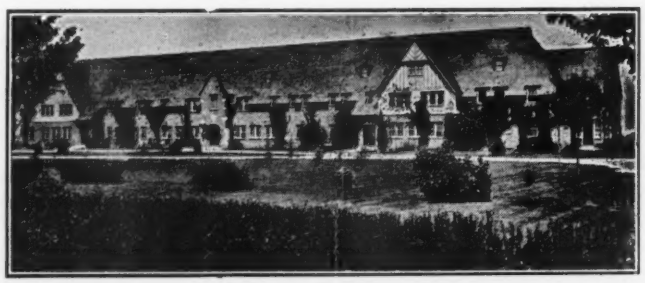

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**Feb. 1935, Vol. XLV, No. 2, 149-154*

Dr. Howard L. Snyder, 61 years of age, died August 16 in Winfield. Dr. Snyder was born October 10, 1878, in Woodford County, Illinois. He attended Southwestern College in Winfield and was graduated from the Jefferson Medical College of Philadelphia in 1904, after which time he came to Winfield. Dr. Snyder was a past-president of

The Kansas Medical Society, and at the time of his death was a member of the Board of Governors of the American College of Surgeons, Kansas representative to American Society Control of Cancer, a delegate to the American Medical Association, a member of the Kansas State Board of Regents, and a member of the Cowley County Medical Society.

KANSAS MEDICAL ASSISTANTS

Our goal is 500 members by May, 1941. If your local group has not organized why not do so this fall. However, local membership is not necessary to affiliate with the state organization. A letter from your physician stating you have been employed one year or longer together with fifty cents state dues is all that is necessary to forward to the State Secretary—Ruth Alton, Union National Building, Wichita. Upon receipt of this information your membership card will be forwarded to you.

Margaret MacKenzie, President.

ANNOUNCEMENTS

Announcement has been received from H. C. Gibner, Colonel of the Medical Corps, Seventh Corps Area of Omaha that full-time physicians are needed for the medical service of the Civilian Conservation Corps. The initial salary is $3,200 per annum. There are, however, no quarters provided for families of the physician and the physician is required to pay for his own maintenance. The principal duties at the camps consists of the medical care of the enrollees. To be eligible for this service, a physician must be a citizen of the United States, a graduate of an accredited medical school authorized to confer the degree of doctor of medicine, licensed to practice medicine, and physically able to perform the duties involved. Physicians over sixty years of age are not ordinarily employed.

Physicians interested in this service are requested to submit their applications to the Office of the Surgeon, Headquarters Seventh Corps Area, Federal Building, Omaha, Nebraska, giving the date on which their services would be available and their preference of assignment in the following states: Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Missouri, Kansas, and Arkansas.

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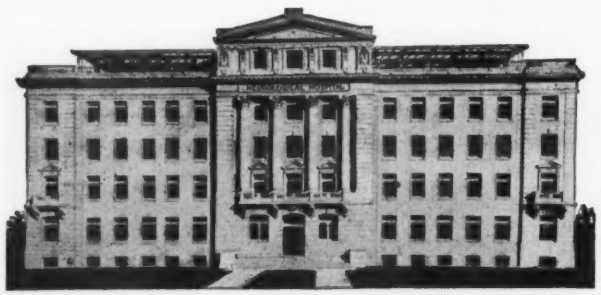

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BOOK REVIEWS

CRIPPLED CHILDREN—Earl D. McBride, B.S., M.D., F.A.C.S., Assistant Professor of Orthopedic Surgery, University of Oklahoma, School of Medicine; and Winifred R. Sink, A.B., R.N., Educational Director, Grace Hospital School of Nursing, Detroit, Michigan. Published by The C. V. Mosby Company, St. Louis. Price $3.50. p.p. 379.

This is a very excellent handbook for those who come in contact with crippled children, whether it be the nurse or the social service worker. It gives a very clear description of the general principles of orthopedics, including equipment, operation room technique, and post-operative nursing care. A short, but good description of plaster of Paris technique follows. The principles of traction, both skin and skeletal are demonstrated.

Physical therapy is well outline. Braces are considered. The rest of the monograph presents descriptions of some of the orthopedic conditions that one commonly encounters in general practice.

It is a very excellent short resume of the subject and would be found very useful by the orthopedic unit.

—M. E. P.

TREATMENT BY DIET — by Clifford J. Barborka, M.D., of the Department of Medicine of Northwestern University School of Medicine, Chicago, published by the J. B. Lippincott Company, of Philadelphia, Pa. Any book meriting four editions in five years is certainly a leader in its field and needs no further recommendations. In this, the fourth edition, the author has made many revisions, particularly in chapers devoted to the vitamins, allergy, gall-bladder diseases, liver diseases, peptic ulcer, nephritis, diabetes and gastritis. Separate chapters are devoted to each disease to which special diets are important in therapy with a discussion of the fundamentals involved, the methods of application of diets and several diets to suit varied individuals and circumstances. Fact and theory are presented briefly and in an easily comprehended manner. Routine hospital diets are discussed and outlined; food composition tables are given together with recipes for various indicated preparations. The bibliography is that of an encyclopedia of nutritionists and metabolic experts indicating the tremendous amount of work expended by the author in preparing this work.

L.A.S.

ESSENTIALS OF THE DIAGNOSTIC EXAMINATION—John B. Youmans, B.A., M.S., M.D., Associate Professor of Medicine and Director of Post-graduate Instruction, Vanderbilt University Medical School. Published by the Commonwealth Fund, New York, 1940. Price $3.00.

As stated in the preface the purpose of this book is to assemble in a single volume the minimum of diagnosic methods and procedures needed in the general practice of medicine.

The material is presented in three parts: I. The History and Physical Examination; II. Laboratory Tests; III. Miscellaneous Tests.

The author repeatedly emphasizes that the subjects are not completely covered. In achieving brevity the book merits some criticism in the specific examples chosen: ex.:

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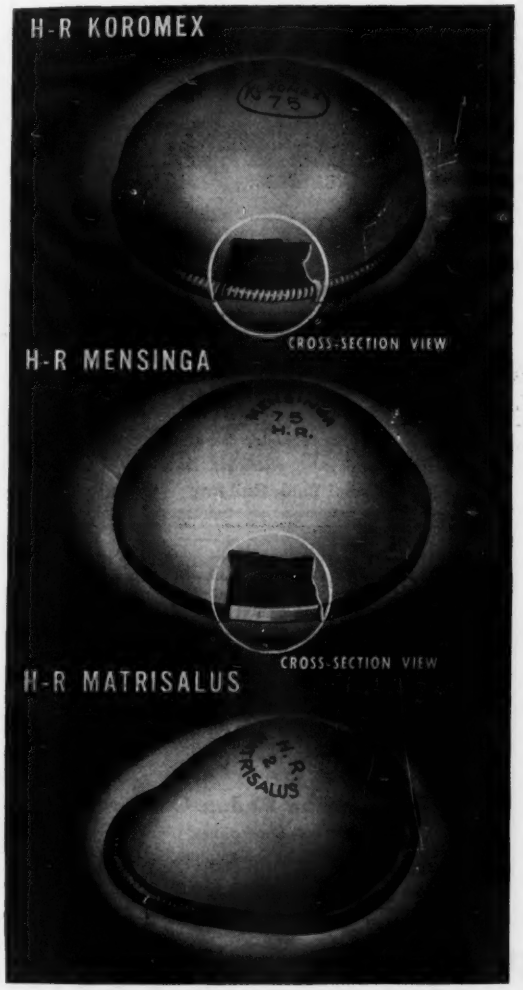

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"the immobility of angina pectoris or coronary occlusion . . . ' as though this were a generally accepted symptom common to these two conditions. Also from the practical aspect one finds passing reference to proctoscopy (three lines) in comparison to twenty-one pages devoted to examination of the feces. A technique for proctoscopy could well have been included.

The section on "History" is good but a bit argumentative. The section on "The Chest" is well balanced; that on "The Heart" is particularly good though percussion in the left third interspace to estimate waistline filling is not specifically stressed. "The Neurological Examination" is well covered. The section, "Laboratory Tests" is clearly presented and very readable. The Appendix and numerous figures and tables offer concisely the answers to many questions which arise in the mind of the reader.

It is commendable that the vast material covered in this small volume could be so well presented. The book is stimulating to read and the author has offered in conclusion a well chosen list of monographs which is entitled "Suggestions for Additional Reading" which enables the reader to inform himself in detail on subjects which this book can but briefly sketch. P.W.M.

NEW BOOKS RECEIVED

MEDICOLEGAL & INDUSTRIAL TOXICOLOGY, Criminal Investigation, and Occupational Diseases—Henry J. Eilmann, Ph.D. Published by the Blakiston Company, Philadelphia, Pa., January 4, 1940. Price $3.00. Containing 324 pages.

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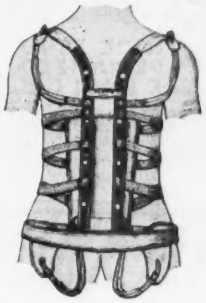

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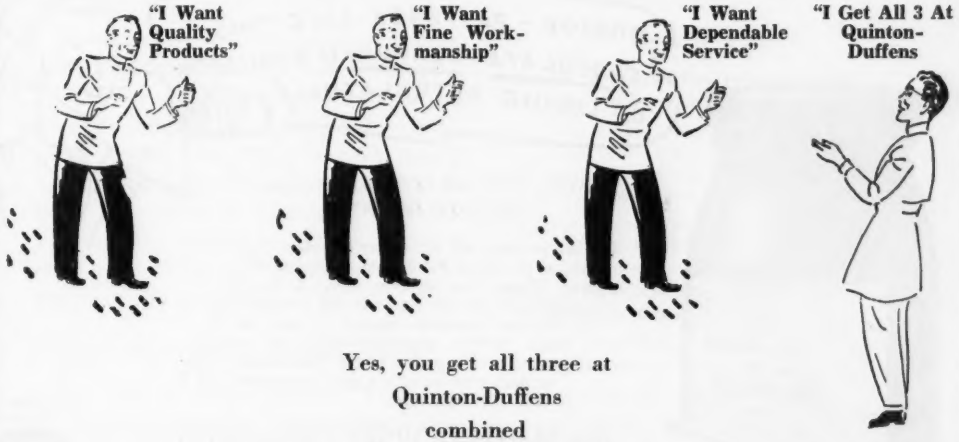

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AUXILIARY

PRESIDENT'S MESSAGE

Now that vacation days are over we turn back to our work in the home and community. It is significant that Labor Day stands at the end of vacation days. We as Auxiliary members have much to do in the eight months left of our auxiliary year.

The Hygeia contest this year starts September 1st and Mrs. Curry has splendid ideas for using Hygeia to pass health education on thru the newspapers and schools. Let's cooperate with her. She may have a real surprise for us soon too.

We are sending loose leaf record books to the chairmen of the state standing committees and councilors for help and guidance thru the years. You might like to use the same idea in each county, having a record book for the president and chairmen of standing committees so the new workers will not have to start the year empty handed. If it is only the year's report you have to pass on, it will be helpful. Please think this over.

If your treasury permits, why not place a Hand Book in each record book for reference. Also our Year Book and the materials sent out by our national and state workers as well as suggestions by the keepers of the book.

Mrs. Holcombs, our national president, is stressing the National Bulletin subscriptions as she feels "thru informations, inspiration can be stimulated and thru knowledge of successful activities, more activities will be motivated." Mrs. H. L. Scales, of Hutchinson, is our state circulation manager and the national auxiliary asks her to secure

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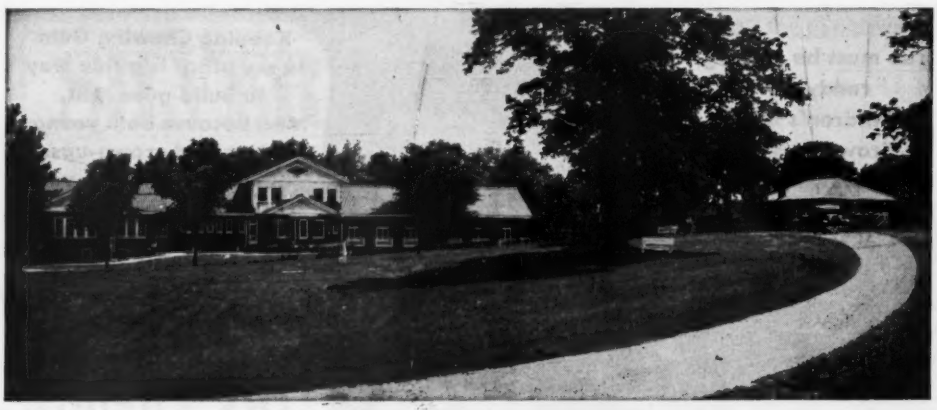

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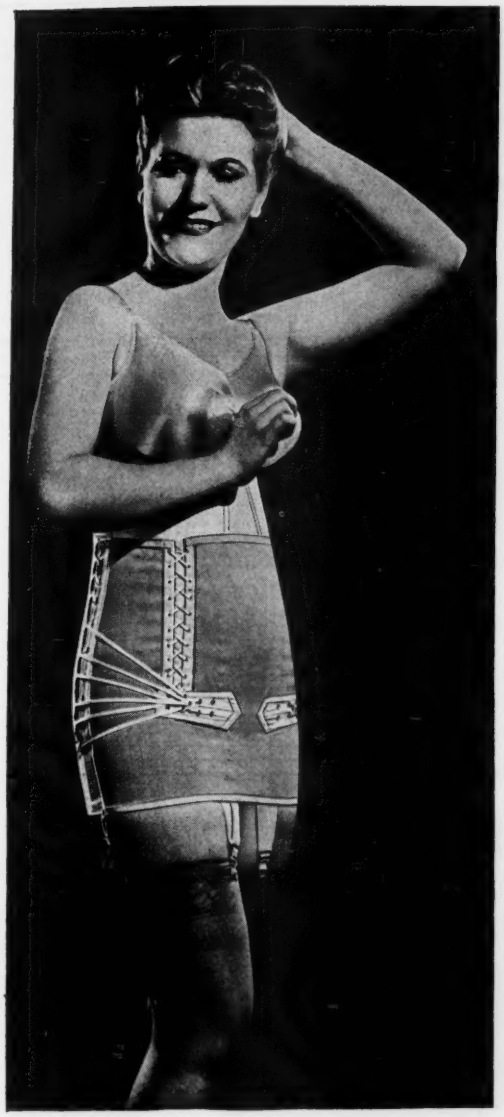

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